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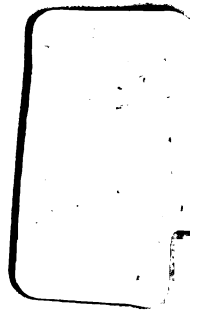

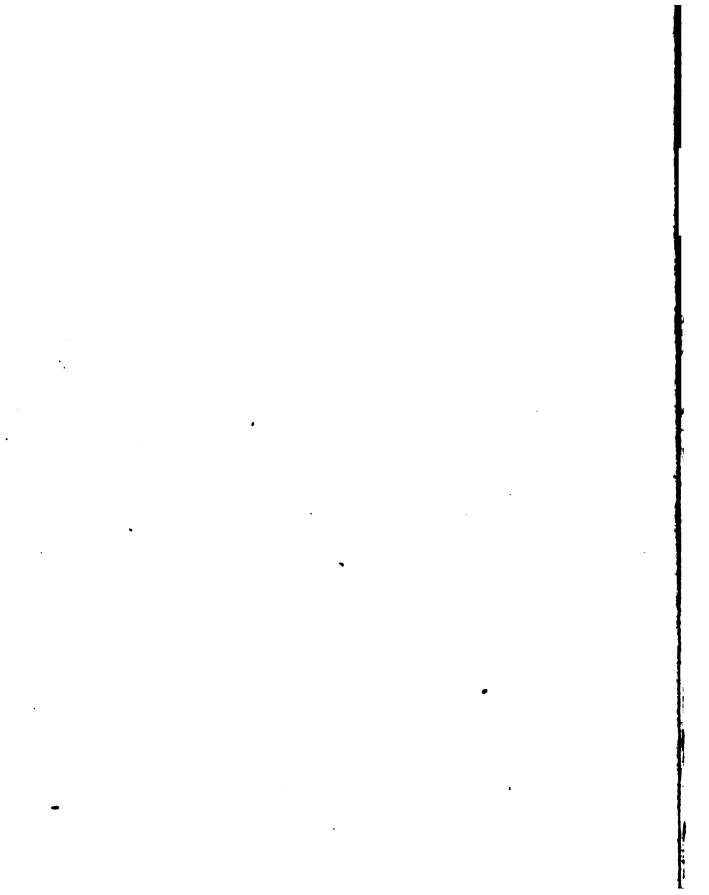

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1856-'57.

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AND SPECIAL SESSION OF 1857.

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Volume 3 contains No. 5 part 2.
Volume 4 contains No. 5 part 3.
Volume 5 contains No. 6 to No. 22, except No. 12.
Volume 6 contains No. 23 to No. 27.
Volume 7 contains No. 28 to No. 36, except No. 35.
Volume 8 contains No. 37 to No. 70, except Nos. 53, 64,* and 65.
Volume 9 contains No. 53 part 1.
Volume 10 contains No. 53 part 2.
Volume 11 contains No. 53 part 3.
Volume 12 contains No. 53 part 4.
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Volume 14 contains No. 35, in quarto.
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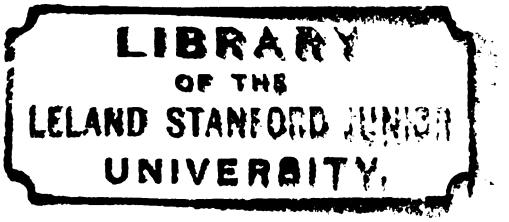

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Communicating his views, &c., relative to providing more efficient means for the preservation of the lives of seamen and passengers wrecked on the coasts of New Jersey and Long Island	7	33	1
Communicating a report of the director of the mint in relation to the fineness and value of certain foreign gold and silver coins	8	42	1
Transmitting a letter from the President of the Louisville and Portland Canal Company in relation to the affairs of said company	8	44	1
Communicating his opinion of any contemplated improvements in the Treasury building	8	49	1
In relation to the navigation and surveys of the frontier lakes	8	52	1
Communicating information respecting duties remitted on railroad iron	8	55	1
Respecting the lands owned by the United States in Chelsea, Massachusetts	8	59	1
Relating to the registry of the British built vessel "Leo"	8	68	1
Transmitting the annual report of the Superintendent of the Coast Survey	15	12	1
Transmitting the annual report on commerce and navigation	13	------	1
Reports, &c., from the Secretary of the Interior, viz:			
Communicating a report from the Commissioner of Pensions of the amount necessary to pay the allowances proposed by the bill passed by the House of Representatives at the last session "to provide for the settlement of the claims of the officers of the revolutionary army, and of the widows and orphan children of those who died in the service	1	2	1
Communicating a statement of the balances of appropriations on July 1, 1855, amount appropriated for the fiscal year ending June 30, 1856, with the amount drawn, and the balances in the treasury during the same period	7	31	1
Communicating the report and survey made with a view to construct a new bridge across the Potomac river	8	40	1
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Communicating his opinion respecting the removal of the surveyor general's office at Dubuque to some point higher up the Mississippi	8	56	1
Communicating a report of the number of widow pensioners now drawing pensions under act of 1853, and the amount of money required to pay said pensions from March 4, 1848, up to the date of said act	8	63	1

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In relation to the icebreaker and breakwater at the entrance of Delaware bay, the erection of a mole or pier opposite thereto, and a marine hospital at Lewistown, and the construction of a breakwater on Crow shoal	5	9	1
Communicating letters addressed to the War Department and to Wilson Shannon, late governor of the Territory of Kansas, by Colonel Sumner, of the army, relative to Kansas affairs, not before communicated; also a copy of a letter from the Adjutant General to Colonel Sumner of March 26, 1856	5	10	1
Communicating an estimate of the expenses for the extension of the United States arsenal at Fayetteville, North Carolina.....	5	11	1
Communicating a report of Lieutenant Colonel Graham, of the condition, &c., of the harbors, &c., in Wisconsin, Illinois, Indiana, and Michigan.....	5	16	1
Communicating a statement of appropriations applicable to the War Department for 1856; the amounts drawn from the treasury and balances therein on the 1st of July, 1856, and amounts carried to the surplus fund.....	5	17	1
Communicating a statement of the disbursements on account of the contingent expenses of the military establishment during the year 1856	5	18	1
Communicating a statement of the expenses of the national armories, and of the arms and appendages made thereto, during the year ending June 30, 1856.....	5	19	1
Communicating statements of contracts made by the War Department during the year 1856.....	7	32	1
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Communicating information as to whether the public interest will be promoted by a survey of the Niagara river, or of any part thereof.....	7	36	1
Transmitting a statement of the expenditures from appropriations for contingencies of the War Department, its offices and bureaus, during the fiscal year ending June 30, 1856.....	8	39	1
Transmitting additional correspondence in relation to the proceedings of the Vigilance Committee in San Francisco in 1856 ...	8	43	1
Communicating extracts from the report of Col. S. H. Long and others in relation to the Des Moines and Rock River rapids, and the harbor at Dubuque, Iowa.....	8	45	1
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Transmitting a copy of the report of Captain Cram, of the corps of Topographical Engineers, in 1856, on the oceanic routes to California	8	51	1
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In relation to the Patuxent and St. Mary's rivers, with map thereof.....	8	70	1
Transmitting a report of Captain McClellan, in relation to the armies of Europe and the campaign in the Crimea, (vol. 1, special session of 1857)	1	1	1

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Transmitting a letter from Judge Lecompte, explanatory of his judicial conduct in Kansas Territory	8	60	1
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In relation to discoveries and improvements in the various departments of agriculture during the year 1856, (part 4)	12	53	1
Reports from the Commissioner of Pensions, viz:			
Respecting the amount that would be required to pay the allowances proposed in the House bill of last session for the settlement of claims of officers of the revolution, and the widows and orphans of those who died in service, (part 1)	1	2	1
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Reports of the Commissioner of Public Buildings, viz:			
Accompanying the President's annual message, and exhibiting the operations of his office during the last year, (part 1).....	2	5	849
Reports of the Superintendent of the Coast Survey, viz:			
Accompanying the President's annual message, (part 1,) in relation to the keys and islands in Florida	2	5	549
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Reports of the Warden of the Penitentiary of the District of Columbia, viz:			
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Reports of the Superintendent of the Government Hospital for the Insane, viz:			
Accompanying the President's annual message, and exhibiting the progress of the same, for the year ending October 31, 1856, (part 1)	2	5	880
Reports of the Engineer in charge of the Little Falls bridge over the Potomac river, viz:			
On the progress and condition of the work upon the bridge across the Potomac at the Little Falls, (part 1).....	2	5	892
Report of a plan for a new jail for the District of Columbia, by Edward Clark, architect, with letter from J. D. Hoover, marshal of said district, (part 1).....	2	5	894

34TH CONGRESS, 3d Session. } SENATE. { Ex. Doc. No. 53.

REPORT

OF THE

COMMISSIONER OF PATENTS

FOR THE YEAR 1856.

ARTS AND MANUFACTURES,

IN THREE VOLUMES.

VOLUME I.

WASHINGTON:
A. O. P. NICHOLSON, PRINTER
1857.

IN THE SENATE OF THE UNITED STATES, *February* 17, 1857.

Resolved, That there be printed, in addition to the usual number, twenty-seven thousand copies of the Annual Report of the Commissioner of Patents on Arts and Manufactures for the year 1856—two thousand copies of which shall be for the use of the Commissioner of Patents, for the purposes of official distribution.

Attest:

ASBURY DICKINS, *Secretary*.

PATENT OFFICE,

Washington, February 5, 1857.

SIR: I have the honor to transmit herewith, to be laid before Congress, my annual Report for the year 1856, as required by the 14th section of the act of 3d March, 1837.

I have the honor to be, very respectfully, your obedient servant,

C. MASON,

Commissioner of Patents.

Hon. JAS. M. MASON,

President Senate United States.

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REPORT

OF THE

COMMISSIONER OF PATENTS,

FOR THE YEAR 1856.

UNITED STATES PATENT OFFICE,
January 31, 1857.

SIR: The condition of this office remains nearly the same as at the time of my last annual report. The business has been constantly increasing, but the force employed has thus far been found adequate to its prompt and thorough discharge.

The number of cases in the office undisposed of at any one time throughout the year would probably average about one hundred. At the end of the year it was only forty. It is hardly practicable to have less unfinished business awaiting the action of the office at one time, or to dispose of applications more promptly than has been done with most of the classes of cases during the past year.

The following tables, continued from previous reports, will show, in a brief and general way, many important facts connected with the business of the office, and also in respect to its present condition.

No. 1.

Statement of moneys received at the Patent Office during the year 1856.

Received on applications for patents, reissues, additional improvements, and extensions, and on caveats, disclaimers, and appeals	$177,965 00
Received for copies, and for recording assignments	14,615 02
Received for old sash	8 00
Total	$192,588 02

No. 2.

Statement of expenditures from the Patent Fund during the year 1856.

Salaries, including $6,695 28 allowed by act of Congress August 18, 1856	$86,626 11
Additional compensation, per act of April 22, 1854	2,382 65
Temporary clerks	36,834 45
Contingent expenses	31,271 52
Payments to judges in appeal cases	225 00
Refunding money paid into the treasury by mistake	198 00
Refunding money on withdrawals	42,393 29
Total	$199,931 02

No. 3.

Statement of the Patent Fund.

Amount to the credit of the Patent Fund on the 1st of January, 1856.....	$62,512 54
Amount paid in during the year.....	192,588 02
Total.....	255,100 56
From which deduct amount of expenditures during the year.....	199,931 02
Leaving in the treasury on the 1st January, 1857.....	$55,169 54

No. 4.

Table exhibiting the business of the office for sixteen years, ending December 31, 1856.

Years.	Applications filed.	Caveats filed.	Patents issued.	Cash received	Cash expended.
1841	847	312	495	$40,413 01	$23,065 87
1842	761	291	517	36,505 68	31,241 48
1843	819	315	531	35,315 81	30,776 96
1844	1,045	380	502	42,509 26	36,344 73
1845	1,246	452	502	51,076 14	39,395 65
1846	1,272	448	619	50,264 16	46,158 71
1847	1,531	533	572	63,111 19	41,878 35
1848	1,628	607	660	67,576 69	58,905 84
1849	1,955	595	1,076	80,752 78	77,716 44
1850	2,193	602	995	86,927 05	80,100 95
1851	2,258	760	869	95,738 61	86,916 93
1852	2,639	996	1,020	112,056 34	95,916 91
1853	2,673	901	958	121,527 45	132,869 83
1854	3,324	868	1,902	163,789 84	167,146 32
1855	4,435	906	2,024	216,459 35	179,540 33
1856	4,960	1,024	2,502	192,588 02	199,931 02

It appears from these statements that the disbursements for the past year have been $7,343 greater than the receipts. This deficiency is chiefly owing to the fact that, by an item in the Civil and Diplomatic Appropriation Bill of the last session of Congress, extra compensation, amounting to $6,695 28, was allowed to certain of the assistant examiners and clerks in the Patent Office for services rendered prior to the 4th of March, 1855. But for this allowance—which cannot at all events be regarded as a legitimate expenditure for the year 1856—the disbursements would have exceeded the revenue only $647 72.

The foregoing tables also show that the business of the office has increased during the year in about the usual proportion. There have been 525 more applications, 118 more caveats, and 478 more patents than in 1855.

It will be seen that the patents have increased in a much greater ratio than the applications; in other words, there have been proportionally fewer rejections than during the previous year. This is pro-

bably attributable in a very great degree to progress made (both in and out of the office) in the knowledge of the proper principles and rules in accordance with which patents should be granted or refused. If perfection were attained in this respect, and if the condition of arts and inventions throughout the world were also thoroughly understood by both agents and examiners, there would be no rejections at all. The applicant and the examiner would come to one and the same conclusion. Disagreement would be as impossible as in an arithmetical calculation. Hence, every advance made in that direction tends to diminish the difference between the number of applications and the number of patents.

The following table will show how the number of patents in the United States compares with those of England and France for several years past:

Year.	England.		United States.		France.
	Patents.		Application for patents.	Patents granted.	Patents.
1846	493		1,272	619	2,088
1847	493		1,531	572	2,150
1848	388		1,628	660	853
1849	514		1,955	1,076	1,477
1850	513		2,193	995	1,687
1851	355		2,258	869	1,836
1852	469		.....	.....	.....
1852	Amendment act.		2,639	1,020	2,469
	Applications for provisional protection.	Patents passed thereon.			
	1,211	914	.....	.....	.....
1853	3,045	2,185	2,673	958	3,111
1854	2,764	1,876	3,324	1,902	3,492
1855	2,958	2,044	4,435	2,024	4,056

The number of patents issued from this office has now grown to exceed those granted by the English office, and the number of applications is greater than are made to that of France. In those two countries there is no examination of applications in the manner practised here, and nearly all patents applied for are granted.

Most of our present laws and regulations relative to patents have been derived from England, and it is probable that other features of their system might be studied with advantage as a means of improving our own.

One of these is the provisional protection or temporary patent for six months. This is somewhat in the nature of our caveat, but, if modified so as to be adapted to our system, would be found an improvement upon our present practice.

A caveat under our law only operates prospectively. It prevents the office from issuing a patent on any application made within one year

subsequent to the filing of the caveat without first giving the caveator a chance to be heard. But if an application for the self-same invention had been made one day previous to such filing, no notice whatever would be taken of the caveat. The very person employed to prepare the papers for the caveat, if sufficiently unscrupulous, can make an application himself for a patent for the same invention. If he anticipates the filing of the caveat by a single day, he may, at a subsequent date, obtain a patent of which there is now no power in this government to deprive him, until it has run its full length of fourteen years. Such a circumstance is known to have actually occurred in this office.

If, instead of a caveat, which only operates upon applications subsequently made, a provisional protection had been allowed which would apply to any case pending in the office, a six months' protection of this kind would be far preferable to a twelve months' caveat.

This protection might be allowed to issue as a matter of course, to be kept secret at the option of the applicant, who would receive a certificate showing his right to a provisional protection. After obtaining such protection, no patent for substantially the same invention should be allowed to issue to any other applicant, whether prior or subsequent in date of its being filed, without giving the holder of that protection an opportunity to show his superior title to such patent. And if, before the expiration of the provisional protection, an application were made by the holder thereof for a full patent, such patent, if allowed, might at the option of the applicant be dated and made to relate back to any day of the six months of the provisional protection, as is the case in England.

It might perhaps be deemed expedient to declare that no person should be made liable for the infringement of the provisional protection without being actually notified of its existence; but even with that qualification it would be a great safeguard of the rights of the inventor, and would prevent many outrageous wrongs for which our present law affords no protection or remedy.

Another feature of both the English and French regulations is, that the patent fee is paid by instalments, thus allowing the patentee, in effect, to surrender his patent whenever he finds it is of less value than the instalments still unpaid. A large majority of the patents are worthless.

The course pursued in England and France permits the inventor to feel his way by degrees, venturing from step to step, with the power f retreating at any moment he feels inclined to do so.

For instance, in England the applicant, in the first place, obtains a provisional protection for six months. This affords him time to perfect his invention, protects him in the mean time against piracy, and gives him an opportunity to satisfy himself to some extent whether it will be prudent for him to venture further. If so, he gives public notice of his intention to that effect; and if no opposition is then made, his patent issues as a matter of course, taking date, at his option, on any day of the six months of his protection.

If, before the end of three years from the date of his patent, he chooses to pay the further fee fixed by law, his patent possesses vitality

for four years longer; and if, before the end of that term, he pays another prescribed fee, the patent is continued for seven years more.

In this manner the revenues of the Patent Office are paid in a larger proportion than under our practice by those who derive most advantage from their patent, and can therefore best afford to pay them. If the same regulation existed here, the fee paid in the first instance might, in such cases, be reduced to a much smaller sum, in order to produce a given revenue, than under the present system. But the greatest advantage presented by such a regulation is, that it would wipe out of being at an early stage of their existence a large proportion of patents which are worthless and unused, and only stand in the way of other inventors.

During nine months prior to the first day of July, 1853, two thousand and forty-seven patents were issued by the English office. The fee necessary to prolong the existence of each of these, after the end of three years from its date, was only paid on 619 of the number, leaving 1,428 to expire at the end of three years.

Under our system, these would all have continued in existence for the whole fourteen years. The majority would have been valueless, and only have served as a clog upon other inventors, inasmuch as many meritorious and useful inventions, subsequently made, might be found so far to interfere with some of those worthless patents that the former could not be used, without paying tribute to the owners of the latter.

A French patent is granted for fifteen years, but becomes void upon a failure to pay a certain annual duty. A very small percentage of them ever continue their existence throughout the whole period of fifteen years.

It has been stated in the public prints that of the 2,088 patents issued in France in 1846 less than three hundred remain in force ten years afterwards, the rest having been swept away by the regulation requiring annual instalments of the patent duty.

These payments are inconveniently frequent in France, and perhaps are more numerous in England than would be deemed expedient; but with proper modifications the principle which lies at the bottom of these regulations has much to recommend it, and might, it is believed, be advantageously adopted by us.

Something in the nature of the English writ of *scire facias* might also with advantage be incorporated into our law. At present there is no power in this country to repeal a patent under any circumstances. Although the very day after it has issued it should be ascertained that the invention was pirated by the patentee from the real inventor, or although, for any other cause, the patent may have been erroneously granted, it must remain in existence the whole period of fourteen years. It is true in these cases the patent would be invalid, and, if granted to the wrong person, another patent may be issued to the real inventor; still the invalid patent is allowed to exist, and may be made productive of much mischief, enabling the holder to impose upon the public either by the sale of a worthless patent, or by extorting money for permission to use the invention, which most persons would pay in preference to engaging in litigation with the holder of a patent

issued in pursuance of the statute, and allowed by law to continue its existence.

Another regulation of the English patent office which deserves to be imitated is that by which all the patents that are issued are directed to be printed separately, and sold at prices which will merely defray expenses.

I regard such an arrangement as being in an eminent degree useful and desirable for the following among other reasons:

It would enable the office to furnish complete copies of any patent, including the drawings, for one-tenth part of what they cost at the present time. It would afford the means of placing a copy of all the patents wherever they are needed for the convenience of the office or of the public, instead of having only one single copy, as at present, for all to refer to, which is wanted often by two or more persons at the same time, and which becomes worn out, so as to require to be re-written after the end of a few years. It would be a great source of economy in another particular, as the mechanical reports of this office might thus be abridged in a very great degree, as nothing further would be necessary in the annual reports than to make a complete and full analytical index of all the patents that had been issued through the year. If, in addition to what is above suggested, a copy of all the patents for the year, with the drawings attached, were deposited in the office of the clerk of each district court of the United States, nothing further in this respect would seem to be requisite. The reports would point out the general nature of the inventions made within the year; whoever desired to obtain more minute information as to any particular case could, for a few dimes, obtain from the Patent Office a complete specification and drawing of the invention, and every State would be furnished with at least one complete copy of all the patents, deposited in the very place where it could be found most useful and convenient for the purpose of reference by litigants or inventors.

To make the system complete, however, a like publication should be made of all previous patents, and also a complete analytical index of the whole. This would indeed be a work that would be worthy of the office and of the country. I feel a strong desire and a confident hope that this work will soon be commenced and consummated with all convenient despatch.

Some of the other regulations of the English and French offices are of more doubtful expediency. Among these is the entire dispensing with all examinations, such as are made in this office. Such examinations are, doubtless, productive of much good. But at the same time I think it by no means certain that this portion of our official action is placed precisely upon the correct footing. I am every year yielding more and more to the conviction that the decisions of the office in reference to patentability should not be peremptory, but merely advisory, and that some system like that suggested in my last annual report might, with great advantage, be substituted for that now in force.

But radical changes should be made with caution, and upon the clearest convictions that such changes will prove salutary. I am, therefore, hardly prepared to urge such alterations at once. But I

feel firmly impressed with the belief that we shall come to this result at last, and that the right of an inventor to protection will not be left to the arbitrary determination of any officer under the government.

The propriety of changes in the rate of patent fees has been urged upon the attention of Congress in several of the last annual reports, and nothing new suggests itself to my mind on that subject at present.

Fully confident that the changes recommended would prove salutary, and that a rate somewhat increased over that now in existence is actually necessary to enable the office to effect completely the purposes for which it was established, the favorable consideration of Congress is again invited to this subject.

All which is respectfully submitted.

CHARLES MASON.

Hon. N. P. BANKS, Jr.,
Speaker of the House of Representatives.

ALPHABETICAL LIST OF PERSONS WHOSE PATENTS HAVE EXPIRED DURING THE YEAR 1856, WITH THEIR INVENTIONS OR DISCOVERIES, AND CLASS.

No.	Patentee.	Invention or discovery.	Class.
2490	Adams, John J	Brushes, manufacturing	17
2820	Adams, John J	Glass, window, flattening and tempering	15
44	Adams, John J	Glass, window, flattening	Reissue.
2559	Adams, Lemuel	Churn	1
2660	Adams, Samuel	Blacking for leather	4
2440	Aiken, Herrick	Excavating ditches	9
2877	Alden, Timothy	Pens, metallic	18
2709	Aldrich, Elisha F	Constructing ships' boats, &c., to be propelled by steam, &c.	7
2597	Allen, Horatio	Valves, cut-off, for steam engines	6
2723	Allen, Otis	Oakum picking	3
2568	Allen, Stephen M	Chimney cowls	5
2427	Allen, Stephen M	Stove, air-tight	5
43	Allen, Timothy	Rivets for coopers	Reissue.
40	Andrews, Ebenezer. (See Austin Packard.)		
2671	Archer, Ellis S	Lamps, lard	5
2435	Armstrong, Martin N	Cutlery, cleaning and polishing	2
2580	Arnold, Alonzo C	Punching machine for the manufacture of covered buttons.	2
2607	Atwood, Anson	Stoves, cooking	5
	Austin, Frederick J	Inking type, machine for	Addit'l imp'ts.
	Austin, Stephen. (See Austin Packard.)		
2698	Ayres, Frederick J	Nails, cutting, machinery for	2
2472	Ayres, Abraham	Spark arrestors and consumers	6
2801	Babbitt, Benjamin T., Shuler C. Higbee, and Peter W. Plantz.	Pumps and fire engines	11
	Bachelder, Lorenzo and Samuel H.	Seeding, seed planters	Addit'l imp'ts.
2484	Bacon, Jonathan	Springs for carriages	10
2644	Baird, Archibald H	Lamps, lard	5
2654	Baker, William	Wood, manufacturing, to be used as a substitute for curled hair in stuffing beds.	14
2776	Baker, William	Hinges, window blinds, and fastenings	2
2718	Baldwin, Cyrus B	Corn shellers	1
2759	Baldwin, Matthias W	Steam engines, locomotive, constructing, by which they adapt themselves to the curves and undulations of the road.	6
2725	Baldwin, Stephen K	Pegs, shoe, machine for cutting	14
2562	Ball, Daniel	Bedstead fastening	17
2809	Ball, Jonathan	Segars, making	22
2565	Ball, William	Padlocks	2
	Ball, William. (See E. H. Roper.)		
2761	Banks, Thomas	Tires, putting on wheels of railroad cars	10
2699	Bartholomew, Moses	Stoves, cooking, elevated ovens with	5
2512	Bartlett, Cromwell K	Excavating, ditching, embanking, and draining prairie lands, &c.	9
2515	Bartlett, Cromwell K	Plough, prairie land	1
2469	Bartlett, Sylvanus	Press, cheese	12
2418	Batchelder, Henry	Flue contractors or chimney valves, for fireplaces and grates.	5
2647	Bates, Issachar, Asa Wood, and David Wells.	Cultivator	1
2477	Bates, Stephen, and George Titcomb.	Propelling boats and extinguishing fires	7
2543	Bauder, Charles L	Chair, rocking	17

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
2682	Bazin, James A	Seraphines, improvement in	18
2585	Beach, William	Roofing, cast-iron	9
2669	Beale, Joshua T. and Benjamin.	Steam engine, rotary	6
2536	Beard, Josiah, and Abram Whitney.	Loom, temples for	3
2702	Beckwith, Amasa B	Water-wheel	11
2710	Beebe, William	Stoves, cooking	5
	Beeson, Zachariah. (See Isaac N. Lesh.)		
2643	Benson, John, Ezekiel Page, and Richardson T. Hough.	Sawing boards into oars for rowing boats	14
2680	Benton, Benjamin H	Surveying instruments	8
2626	Bergen, Cornelius	Plough	1
2741	Bigelow, Erastus B	Loom-power, weaving counterpanes, &c.	3
2744	Bigelow, Erastus B	Loom-power, weaving counterpanes, &c.	3
2625	Bigelow, Erastus B	Loom, weaving carpets, &c	3
2639	Bigelow, Erastus B	Loom, weaving carpets, &c	3
2653	Bigelow, Erastus B	Loom, weaving counterpanes, &c., manner of mounting.	3
2819	Bingham, Albert	Lock or latch, check-bolt of	2
2513	Bird, Josiah N., and Edward D. Weld.	Smut machine, for cleaning grain	1
2716	Birely, Valentine	Mill, bark, grain, &c., grinding	13
2419	Bishop, Seth	Butter, working, machines for	1
2692	Bishop, Thomas	Filters	11
2494	Blaisdell, Stephen	Matches, friction, ignitable compound	4
2577	Blake, Lemuel W., and George W.	Water-wheel	11
2802	Boardman, Luther	Spoons, casting, forming moulds for	2
2850	Boesch, John W	Roofs, metallic, rendering water-tight	9
2861	Booth, Edwin	Bee-hives	1
2595	Bossert, Charles, and John Schomacker.	Pianoforte	18
2538	Bosworth, Zephaniah	Stoves, air-tight	5
58	Botts, Charles T	Straw cutter	Addit'l imp'ts.
2753	Bouton, Alexander M., and Andrew Perry.	Steam engine, changing reciprocating into rotary motion.	6
2859	Bowler, Joshua S	Boots and shoes	16
2661	Bowles, Jesse	Threshing machine	1
2540	Brady, Sam	Cultivator	1
2434	Bragg, Appleton	Propelling boats by endless chains of paddles.	7
3492	Branson, John, jr	Excavating, ditching, and embanking, scraper for.	9
2569	Brereton, John	Ranges, cooking	5
2857	Brewer, Richard	Furnace tuyeres	2
2734	Briggs, Elisha	Fence pickets, &c., turning	14
2770	Briggs, Joseph, jr	Engine, fire	11
2847	Brooks, Oliver, and James A. Sloan.	Hats, cassimere	3
2542	Brown, Charles, and Francis S. Crans.	Mowing, cutting and cleaning grain	1
2687	Brown, Christopher F	Gas metres	4
2479	Brown, Lorenzo D	Paper sizing	3
2462	Brown, Robert S	Buttons, forming, worked on the heads, handles, &c., of whips.	16
52	Brown, Robert S	Buttons, forming, worked on the heads, handles, &c., of whips.	Addit'l imp'ts
2789	Brown, Samuel G	Spark arrestors	6
2450	Brundage, Henry C	Garments, measuring instruments	21
2852	Bruner, J. H., & R. H. Thompson.	Barrels and other cooper's ware, machine to be used in combination with improved iron hoops in the manufacture of	14

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	C
2711	Brunier, Louis	Hydraulic machines	
2830	Brunier, Louis	Steam engine, reacting, &c	
2890	Bryant, William	Beehives	
2750	Buck, Erastus	Stoves, cooking	
2771	Buckalew, James	Spikes, brads, and nails, clinching	
2507	Bullock, S. W	Press, cotton, hay, &c	
61	Burnham, George	Inkstands	Ad im
2680	Burnham, Hiram	Spinning, twisting, and kinking hair	
	Burnham, Sylvester E. (See Ransom Cook.)		
2581	Burrows, Joseph H	Millstones	
2619	Carbonel, Antoine	Brick press	
2591	Carbonel, Antoine	Moulds, sugar making	
	Card, William F. (See Esau Whitney.)		
2561	Card, William J	Surveys, instruments for plotting	
2635	Carleton, George W	Matches, friction, improvement in	
	Carlile Jonathan. (See Aaron Francis.)		
2894	Carpenter, Luman	Copying machines	
2514	Carr, Charles	Lamps, argand, spirits of turpentine, &c., burning.	
2449	Carr, William	Windlass, ship's	
2429	Carver, Eleazer	Gin roller, for ginning long staple cotton	
2745	Casselberry, Evans	Clocks, self-winding	
	Caswell, Samuel, jr. (See Chas. Richmond.)		
2812	Chapman, John Lee	Hydrants	
2845	Chase, A. Ralston	Propelling paddles, buckets, &c	
2511	Chase, Moses	Carding and spinning machines	
2461	Chevrier, Louis	Spark arrestors	
	Clark, Edward	Salts, metallic	Ext
2676	Clayton, William. (See Samuel Guss.)	Carriage lock	
2897	Cleveland, Horace	Excavating, ditching, and embanking earth	
2586	Clinton, Charles	Boilers, steam	
2551	Clirehugh, Vair	Composition, preparation for the hair	
2875	Clute, Jeremiah, and Jacob Seabury.	Furnace, improvement in	
2521	Coad, Patrick	Galvanic battery, &c	
	Coburn, John H. (See Roswell Douglass.)		
2842	Cochran, John W	Furs, process of blowing and cleaning	
	Collins, Fitch K. & G S. (See Chester Stone.)		
	Collins, F. K. & G. S. (See Chester Stone)		
2816	Conant, Abel	Bread, raising	
2672	Connison, Alexander	Constructing paddle wheels, and combining the same with steam vessels.	
2872	Connison, Alexander	Steam engine	
2423	Cook, Peter	Smut machine cleaning grain, &c	
2443	Cook, Ransom	Cannon, wrought iron and steel	
2444	Cook, Ransom, and Sylvester E. Burnham.	Saw-mill saw, mode of straining	
2623	Cook, Truman	Propelling steamboats and other vessels	
2807	Cooper, John M	Auger for boring earth	
2743	Cooper, Peter, assignee of J. S. Gustin.	Furnace, puddling and refining iron	
36	Copeland, Asa, jr	Gin, cotton, ribs	Rei
2724	Cornell, Abel, and Niram R. Merchant.	Stoves	

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
	Crane, Benjamin. (See John Milholland.)		
	Crans, Francis S. (See Charles Brown.)		
2589	Creasey, Charles A.	Cocks, manufacture of.	11
2751	Creighton, John T.	Lamps, lard	5
2804	Crosby, Pearson	Saw-mill, portable	14
2614	Cummings, Daniel M.	Shingles, cutting	14
2881	Curtiss, Charles W	Bedstead	17
2655	Dakin, James H.	Tents, portable	22
2576	Danforth, Charles.	Spinning—cap spinner, mode of driving bobbins in.	3
2575	Danforth, Charles.	Spinning—cap spinner, oiling spindles and tubes of.	3
2615	Darling, Samuel, 2d.	Saw-mill, arranging the saw gate and fender posts of.	14
2783	Dauvergne, Peter L.	Gold washing	2
2777	Davidson, Jessee W.	Bee-hives	1
2826	Davis, Daniel, jr. (See John Plumbe, jr.)	Daguerreotype pictures, coloring	18
	Davis, Frederick. (See Levi Magers.		
2602	Davis, George W., and George.	Steam engine, conducting off the steam from the cylinder.	6
2674	Day, Ebenezer.	Clapboards, laths, staves, &c., cutting	14
	Deardoff, Jacob. (See Isaac N. Lesh.)		
2765	Degen, Francis.	Hats, setting or ironing brims of.	3
2529	Delano, Howard.	Plough, revolving, cutter for	1
	Denny, William H. (See Jno. J. Doane,)		
2558	Detmold, Christian Edward, assignee of Wilhelm von Faber Du Faur.	Furnace, &c., heating	2
2781	Deville, F.	Wigs	21
2519	Dexter, Henry.	Sculptors, apparatus for, &c	18
2630	Dibble, Maria P.	Supporters, umbilical, combined with corsets.	20
2840	Dick, John	Boots and shoes	16
2719	Dickinson, David B.	Safes for preserving meats, &c.	17
2606	Diehl, Samuel.	Water-wheel	11
2863	Doane, John J., and William H. Denny.	Coal sifters	5
	Dobbs, Geo. (See Uel West.)		
2790	Dominis, John.	Sails, measuring, instrument for.	7
2489	Douglass, Roswell, assignee of John H. Coburn.	Loom, weavers' shuttles	3
2895	Douglass, Wm. and Benjamin.	Pumps	11
2883	Dowell, William.	Wigs	21
2891	Downer, Andrew O.	Lock and latch-knobs, fastening to their spindles, &c.	2
2424	Draper, Francis	Lamps, glass, caps of.	5
2164	Draper, George	Loom, power, rotary temples for	3
	Dukehart, Wm. (See Levi Magers.)		
2757	Durkee, Joseph	Water-wheel	11
2579	Durling, James.	Flouring mills, combining a smut machine with the scouring stones.	13
2574	Duxbury, Caleb and Jas. Nield.	Loom, power.	3
2656	Dyott, Michael B.	Lamps, essential oils, burning	5
2627	Easterly, James	Grates, open	5
2578	Eastlack, Edwin, and Joseph A. Miller.	Gate, self-acting waste	11

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
2454	Easton, Thomas S.	Explosion of boilers, preventing	6
2846	Easton, Thomas S.	Explosion of boilers, preventing	6
53	Easton, Thomas S.	Explosion of boilers, preventing	Addi'tl imp'ts.
41	Easton, Thomas S.	Explosion of boilers, preventing	Re-issue.
42	Easton, Thomas S.	Explosion of boilers, preventing	Re-issue.
46	Easton, Thomas S.	Explosion of boilers, preventing	Re-issue.
2764	Eley, Solomon M., and David N. Phelps.	Steam engine, rotary	6
2808	Eckler, James	Spark arrestors	6
2535	Edday, Charles C.	Vinous fermentation	4
62	Edday, Charles C.	Vinous fermentation	Addi'tl imp'ts.
2772	Emmons, William	Spikes, &c., clinching	2
	English, William. (See George T. Tate.)		
2533	Etzler, John A.	Navigating and propelling vessels by wind and waves.	7
2786	Eunson, Robert G.	Steam engine, discharging water and air from condensers of.	6
2795	Evans, Cadwallader	Boilers, steam, applying a float to regulate the height of water in.	6
	Evarts, Harry H. (See Peckham H. Green.)		
2888	Ewbank, Thomas. (See Jordan L. Mott.)	Chimney caps	5
2560	Fahnestock, A. K	Brick press	15
2835	Fahrney, Samuel	Smut-machine, separating garlic from wheat.	1
2633	Farnam, Daniel H.	Bee-hives	1
	Farnum, Roswell. (ee William Jones.)		
2425	Fay, Jerub A.	Mortising timber	14
2884	Fentriss, Frederick	Washing machine	17
2740	Ferre, Moses	Buttons, &c., forming collets, washers, &c.	21
2870	Ferris, Peter	Ink, black, making	4
	Field, Joshua. (See Joseph Maudslay.)		
	Fleming, Joseph. (See Webb Wallace.)		
2649	Flickinger, Daniel, and Sebastian Krim.	Smut machine, cleaning grain	1
2696	Flint, Thomas	Loom, power, weaving carpets, &c.	3
2520	Folger, Aaron	Lamps and reflectors of light-houses, arranging, &c.	5
2636	Foote, Elisha, jr.	Stoves, regulating the draft in	5
2849	Foster, Matthew S.	Teeth, improvement in setting	20
2853	Foster, William	Shingles, cutting	14
2715	Fowler, John	Bedstead, fastening	17
2862	Francis, Aaron, and Jonathan Carlile.	Bee-hives	1
2667	Freed, Abraham	Saddles, spring	16
2493	French, Arasmus	Knitting stockings, &c	3
2666	French, Ira, assignee of Maynard French.	Stoves, rotary top	5
2701	Frew, Samuel	Telegraphs	8
2889	Fry, John P.	Flax and hemp, braking	3
2611	Fry, Samuel	Press, cotton	12
2555	Gardiner, P. G.	Press, cotton, hay, &c.	12
2537	Garfield, Samuel, sr., assignee of Thomas W. Harvey.	Mowing—scythes, fastening the nibs of	1
2864	Geisendorff, J. C., G. W. & C. E.	Flax and hemp, cleaning and dressing	3
2553	Gilbert, David H.	Paper, &c., applying paste or sizing to sheets of, in process of making cards.	3

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
2742	Gilbert, John S.	Dock, floating dry	9
2900	Gilmore, John T.	Waterwheel, inclined	11
2486	Gilroy, Clinton G. (See Jeremiah Wilbur.)	Loom	3
2603	Goodwin, Roderick	Churn	1
2763	Grannis, John	Lamps, lard	5
	Grannis, Sidney S. (See Howe.)	Loom harness, wire heddles	Reissue.
	Grant, Wm. (See Jas. Kerr.)		
2833	Gray, Albert W.	Horse-power, endless chain	13
2485	Green, Peckham H., & Harry H. Evarts.	Steam engine, rotary, propelled by water or steam.	6
2466	Greenough, J. J.	Sewing or stitching all kinds of straight saws.	16
2621	Greenwood, Miles, assignee of George E. Sellers.	Latch and lock, gravitating combined, for doors.	2
2610	Greenwood, Miles, assignee of George E. Sellers.	Latch, door, right and left	2
2433	Gregg, John	Air, condensing apparatus for, &c.	6
2532	Gregg, Mahlon	Metal, plates or sheets of, cutting	2
2455	Grimes, William C.	Spark arrestors	6
2441	Griswold, Jesse	Barrels of guns and fire-arms, manner of combining.	19
2760	Grout, John R.	Brakes of railroad cars, machinery for operating.	10
2645	Grumman, Elijah	Bee-hives	1
2876	Grylls, John	Capstans, or windlasses, ships', and cable stoppers.	7
2824	Guilford, Simeon	Iron, sheet, manufacturing	2
2735	Guiteau, Calvin	Salt works, improvement in	4
2676	Guss, Samuel, assignee of Wm. Clayton.	Brake or lock for arresting the motion of spring carriages.	10
2743	Gustin, John S. (See Peter Cooper.	Furnace, puddling and refining iron	2
	Guyon, Henry G.	Press, lever	Disclai'r
2768	Hall, Alfred	Brick press	15
2704	Hamilton, James	Saw-mill gates for curvilinear sawing	14
2810	Hanks, Stedman W.	Stoves	5
2769	Harding, Robert.	Press, cotton, hay, &c., toggle joint	12
2839	Harlacher, Jacob	Carriages, disengaging horses from	10
2832	Harn, William H.	Tenons, cutting	14
59	Harrison, Joseph, jr.	Car, railroad, &c	Add'nal imp't
2782	Hart, Alexander H.	Shingles, cutting	14
2537	Harvey, Thos. W. (See Sam'l Garfield.)	Mowing, nibs for scythes	1
2505	Hatch, Nathaniel	Composition, rendering cloth water-proof.	4
2867	Haupt, Henry Y, and Abraham, jr.	Kiln for drying grain	5
2500	Hawkins, Thomas. (See Jas. G. Wilson.)	Shears, tailors'	21
2471	Hean, John	Flour, bolting and dressing	13
2677	Hedge, Lemuel, and Edwin F. Johnson.	Saw-mill	14
2837	Hemming, John	Gas meters	6
2814	Hench, Zachariah R.	Bee-hives	1
2616	Hendrick, Benj. W., and Horace	Loom, weaving	3
2531	Henning, George	Saw-mill dog, self-setting	14
2860	Henry, Robert H.	Wheels, felloes of carriage, machinery for shaping the inner side of.	16
2481	Herrick, Hiram H.	Shingles, cutting	14
2775	Hicks, Lucien E., and Thomas Miner	Baths, medicated vapor	20

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
2594	Hidden, Enoch, inventor in part with, and assignee of Samuel Sawyer.	Cannon locks	19
	Higbee, Shuler C. (See Benjamin T. Babbitt.)		
2442	Hill, Selah	Dock, floating dry	9
2692	Hiser, Henry	Bee-hives	1
2800	Hilt, Daniel F	Churn	1
2496	Hoagland, John V. L	Spark arrestors	6
	Hobbs, Alfred C. (See Wm. S. Thompson.)		
2754	Hodges, Alexander, agent of New England Screw Company, assignee of Cullen Whipple.	Screws, wood, cutting threads of	2
2685	Hodges, Jonathan	Spark arrestors	6
2504	Hodgman, Daniel	Shoes, over	16
2656	Hoe, Richard M	Metallic surfaces, particularly saw-plates, grinding and polishing.	2
2629	Hoe, Richard M	Printing-press, double cylinder	18
2508	Holmes, William	Windlass and capstan, method of working ships.	7
2564	Homer, Daniel	Horse shoes for the relief and cure of hoof-bound horses.	2
2823	Hoover, Henry, assignee of Martin Stoner.	Cutting vegetables, &c	17
2678	Hopkins, Lansing F	Boilers, steam and generators	6
2641	Horn, Benjamin H	Lamps, lard	5
2413	Horn, Edwin B	Lamps	5
63	Horn, Edwin B	Lamps	Addit'l impt.
2451	Hort, Benjamin S	Screening and sifting coals	5
	Horton, William F. (See Austin W. Sharp.)		
	Hough, Richardson T. (See John Benson.)		
2691	Houghton, Joel	Plough-beams	1
2599	Howd, Samuel B	Water-wheel	11
39	Howe, Abraham and Sidney S Grannis	Loom harness, wire heddles	Reissue
2620	Hull, Nathan	Plough	1
2834	Humphrey, John	Veneers, &c., cutting from the circumference of a log.	14
54	Hungerford, Josiah	Truss	Addit'l impt's.
2792	Hunt, Marshall J	Plough, cultivating	1
2737	Hunter, Jacob Van Reed	Furnace, smelting iron	2
2487	Hunter, William W	Navigation, steam, by which the submerged propeller is made to operate as an air-pump and condenser.	7
2856	Iba, William, assignee of Caspar Kittinger.	Veneering curved surfaces	14
2549	Ingalls, Elias I	Cutting leather into soles	16
2544	Irvin, David	Saddles	16
2785	Jacobs, William L	Pumps	11
2608	James, Theodorick J	Gin-saw, for ginning cotton	3
2690	Jenkins, Oliver	Drawers, improvement in	17
2554	Johnson, Arthur L	Window-shutters, or guards	9
	Johnson, Edwin F. (See Lemuel Hedge.)		
2475	Johnson, John C	Spark arresters	6
2446	Joly, Charles	Water-wheel, &c., adjustable boxes, &c	11
2731	Jones, Alexander	Gin, cotton, saw-cylinder for	3

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
2458	Jones, A. B., assignee of William H. Jones.	Silk, reel for reeling	3
2525	Jones, H. C.	Padlocks for mail-bags, &c.	2
2618	Jones, James	Bee-hives	1
2727	Jones, Thomas L.	Propelling and steering boats, &c	7
2896	Jones, William, and Roswell Farnum.	Steam engine, rotary	6
	Jones, William H. (See A. B. Jones.)		
2588	Keagy, Abraham, and Michael Shimer.	Spark arrestors	6
2556	Kellogg, Salvin F	Stoves, air-heating	5
2480	Kelly, John	Horse power, endless chain	13
2670	Kelly, William	Steam engine	6
50	Kelsey, James E., and James A. Potter.	Press, cotton	Addit'l imp'ts.
2612	Kerr, James, William Grant, and John Potter.	Vessels' lining, constructed of sheet-iron	7
56	Kerr, James, William Grant, and John Potter.	Vessels' lining, constructed of sheet-iron	Addit'l imp'ts.
47	Kerr, James, William Grant, and John Potter.	Vessels' lining, constructed of sheet-iron	Reissue.
2663	Kilburn, Wells	Seeding, seed planters	1
2457	Kinney, Avery	Shingles, cutting	14
2601	Kintzi, George	Carriages, releasing horses from	10
2856	Kittinger, Casper. (See William Iba.)	Veneering machine	14
2415	Knipe, James	Bedstead, fastening	17
2730	Knowland, Joseph, and Jacob F. Krim, Sebastian. (See Daniel Flickinger.)	Garment measuring instruments	21
2422	Kropff, Frederick C	Furnace, smelting, constructing	2
2825	Laing, John	Propelling boats, &c., segmental spiral propellers.	7
2838	Lake, Andrew	Strabismus, goggles for	20
2546	Lamb, William	Water wheel	11
2829	Landis, Edmund	Trus[illegible]	20
2689	Langdon, Barnabas	Plough	1
2736	Lansing, Eli B	Water wheel	11
2799	Lawrence, Isaac R	Horse-power, endless chain	13
2478	Leach, Harvey	Bridge, manner of crossing rivers, &c., by means of a moving platform suspended to a.	9
2831	Learned, Charles	Flax and hemp, cleaning and heckling	3
2652	Learned, Samuel	Staves, dressing, for barrels, casks, &c.	14
2755	Leavitt, Daniel	Loom, securing the bobbin in shuttles for weaving.	3
2854	Lee, John	Lamps, lard	5
	Lee, Milo. (See Ebenezer Wilson.)		
2570	Lee, Stephen S	Lamps, hydro-pneumatic	5
2693	Lesh, Isaac N. & Silas W., Jacob Deardorff, and Zachariah Reeson.	Steam generator, improvement in	6
2463	Lewis, James	Spark arrestors	6
2545	Lighthall, William A	Steam engine, marine	6
2758	Lindley, Noah H.	Churn	1
2523	Loud, Thomas	Pianoforte, shifting movement for square or horizontal.	18
2640	L'Veret, Peter F	Garments, measuring instrument	21
2738	Lyon, Charles	Composition, water-proof	4
2502	Macgregor, James, jr.	Bomb, subterrene or mine	19
2541	Mackay, James	Composition for the hair	4
2663	Magers, Levi, Frederick Davis, and Wm. Dukehart.	Cocks, stop, for hydrants	11

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Cl
2604	Maltby, Benjamin K. (See Jesse Neal.)	Lamp	
	Maltby, Benj. K. (See Jesse Neal.)		
2460	Mandell, David J	Ink-stands, manufacture of	
2600	Marsh, Ebenezer	Candles, manufacture of	
2657	Martine, Caleb	Press, cotton, hay, &c	
2868	Mason, David H	Tanning by machinery	
2650	Mason, John	Cultivator for vines	
2668	Maudslay, Joseph, and Joshua Field.	Steam engine, marine	
2746	McGrew, Alexander	Wind-mills	
2688	McManaway, John C	Furnace, refining, iron	
2796	McMillen, William	Flax and hemp, braking and cleaning	
	Merchant, Niram R. (See Abel Cornell.)		
2844	Merriam, T. P	Composition for preserving leather	
38	Merrick, Solyman	Wrench, screw	Rei
2836	Miles, William	Water wheel, current	
2592	Milholland, John, and Benjamin Crane.	Bee-hives	
	Miller, Henry. (See Wm. A. Ronald.)		
	Miller, Joseph A. (See Edwin Eastlack.)		
2705	Miller, William H	Clasps for pantaloon straps, &c	
	Miner, Thomas. (See Lucien E. Hicks.)		
2550	Mitchell, Reuben	Heating buildings	
2694	Montrop, L	Tallow, rendering	
2476	Morris, John	Cutting meat and other substances	
	Morse, Lemuel. (See Benjamin R. Stevens.)		
2882	Moseley, Peter	Corn rows, &c., laying off	
2887	Mott, Jordan L	Chimney caps	
2888	Mott, Jordan L., assignee of Thomas Ewbank.	Chimney caps	
2503	Mott, Jordan L	Stoves, cooking, tubular, &c	
2465	Mulford, John H	Escapement of watches	
2806	Munson, Sylvester	Shingles, cutting	
2817	Murdock, Richard	Bonnets, &c., machinery for pressing	
37	Murray, Alexander J	Press, cotton, &c	Rei
2459	Murray, James & William	Corn and corn-cobs, breaking and grinding	
2420	Myers, Lawrence	Statues, casting, method of	
2712	Myers, Samuel	Plough	
2604	Neal, Jesse, part inventor with and assignee of B. K. Maltby.	Lamps, lard	
60	Neal, Jesse, part inventor with and assignee of B. K. Maltby.	Lamps, lard	Ac im
2778	Nelson, George	Stoves	
2574	Nield, Jas. (See Caleb Duxbury.	Looms, power	
2681	Norris, H. Ariel	Boring and tapping water and other pipes, while under hydrostatic pressure.	
2794	Norris, H. Ariel	Boring, tapping, and reaming water pipes, under hydrostatic pressure.	
45	Norris, H. Ariel	Boring and tapping water pipes, under hydrostatic pressure.	Re
2793	Northrup, Joel G	Printing press	
2784	Norton, Hiram L	Plough	
55	Olds, Calvin	Seeding, seed-sower, or corn planter	Ac in
2828	Oliver, Ebenezer	Traps for rats, &c	

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
48	Orr, Isaac	Stove, air-tight	Reissue.
2497	Osborne, John J., assignee of William H. Porter.	Anchors	7
2646	Osborne, Marmaduke	Felting for coats, hats, &c	3
2470	Otto, Henry C	Paint, white, mode of preparing	4
40	Packard, Austin, assignee of E. Andrews and S. Austin.	Stove, cooking	Reissue.
2642	Packard, Otis	Furnaces, cooking, and air-heating	5
2483	Packard, Otis	Heating buildings, apparatus for	5
	Page, Ezekiel. (See John Benson.)		
2818	Pagett, William C	Plough, shovel	1
2518	Parker, Edmund	Latch-thumb, for doors	2
2495	Parker, Joseph J	Steam engine, rotary	6
2662	Parks, Stephen, jr	Valves, cut off for steam engines	6
2879	Parsons, James, jr	Plough, combined	1
2474	Paulsen, Herman G. C	Glue, manufacture of	4
	Perry, Andrew. (See Alexander M. Bouton.)		
2811	Perry, Enoch W	Lamps, wick tubes for	5
2678	Peters, Warner L	Mortising and tenoning machine	14
2506	Petree, David	Stoves, Franklin, burning coal	5
2516	Pettibone, Daniel	Lamps, argand, volatile materials, burning	5
	Phelps, David N. (See Solomon M. Eby.)		
2851	Phillips, Philetus	Stoves	5
2426	Piggott, Robert	Geography and astrography, apparatus for teaching.	8
2822	Pitts, James	Shearing satinets and other woolen cloths.	3
	Plantz, Peter W. (See Benjamin T. Babbitt.)		
2826	Plumbe, John, jr., assignee of Daniel Davis, jr.	Daguerreotype pictures, coloring	18
2437	Pomeroy, Ralph	Steam engine	6
2752	Porter, Parry W	Press, cotton	12
2497	Porter, William H. (See John J. Osborne.)	Anchors	7
	Potter, James A. (See James E. Kelsey.)		
	Potter, John. (See James Kerr.)		
2815	Potts, John H	Sausage machine	17
2517	Pratt, Henry	Steam engine, rotary, propelled by steam, water, &c.	6
2530	Pratt, Joel, 3d	Bedstead sofa	17
2416	Quilliard, Claude S	Furnace, &c., reverberatory	2
2467	Ralston, Andrew	Threshing machine and winnowing grain.	1
2488	Read, Jonathan	Reaping machine	1
2679	Redheffer, William	Combs, slitting tortoise-shell for making	21
2430	Reiley, Thomas W	Propelling boats by jets of water	7
2637	Remington, John R	Engine, pneumatic	11
2675	Remington, John R	Wind-wheels	11
2708	Rich, Reuben	Water wheel	11
	Richmond, Charles and Samuel Caswell, jr.	Spades & shovels	Discl'r.
2721	Rickey, John C	Sleighs or sleds, mode of locking	10
2713	Riddell, George W	Truss	20
	Ridgaway, William, jr. (See John Stansbury.)		
2563	Ridgway, Jonathan	Cocks, stop	11
2722	Ridgway, Jonathan	Pipes—inserting branch pipes through the ground without excavating.	9
2767	Riley, Salmon C	Stove, cooking, utensils for	5
2473	Robinson, Enoch	Windlasses, or drums for raising weights	12
2797	Robinson, Geo. W. and Ezra B.	Steering apparatus for vessels	7

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	C
2452	Robinson, Geo. W. and Ezra B.	Window-sash, spring fastener	
2873	Robinson, P.	Lamps, lard	
2779	Rodgers, Henry	Pumps, liquor	
2728	Roebling, John A.	Boilers, steam, gauge, steam safety	
2720	Roebling, John A.	Ropes, wire, method of, and machinery for manufacturing.	
2526	Rogers, William A.	Cultivator, cotton	
2431	Ronald, William A. and Henry Miller.	Composition for dressing leather, to render it water-proof.	
2848	Roper, E. H., and Wm. Ball	Padlocks	
2707	Ross, James E.	Beehives	
2885	Rowe, Bradford	Boot-crimps	
2509	Rudd, Daniel	Propelling ships and other vessels	
2766	Rugg, Micah	Bolts, trimming the heads of	
2686	Sanford, Joseph H.	Boot-legs, turning	
2456	Sands, Marcellus	Washboard, for washing clothes	
2805	Sargent, Charles G.	Wool, combing, machine for	
	Sawyer, Samuel. (See Enoch Hidden.)		
2499	Sayre, Thomas O.	Stoves, cooking, semi-circular	
	Schomacher, John. (See Chas. Bossert.		
	Seabury, Jacob. See (Jeremiah Clute.)		
2590	Seger, Hiram	Garments, measuring and cutting	
2610	Sellers, George E. (See Miles Greenwood.)	Door-latch	
2621	Sellers, George E. (See Miles Greenwood.)	Quadrant, bolt and lock	
2587	Sexton, Samuel B.	Stoves, cooking	
2865	Share, Philip T.	Steering wheel for vessels	
2871	Sharp, Austin W., and William F. Horton.	Boilers, steam or generator	
2893	Shaw, William F.	Lamps	
2482	Shecut, William H	Life-preservers, rendering chairs, &c., buoyant.	
2632	Sheetz, Isaac	Sawmill, sawing felloes and other circular stuff.	
2566	Sheffield, John	Sawing boards, setting logs for	
2659	Shepard, Benjamin	Stoves, culinary and air-heating	
2886	Sherwood, John P	Lock, door	
	Shimer, Michael. (See Abraham Keagy.)		
2527	Shugert, John.	Gudgeons, &c., self-oiling box for	
2631	Sickels, Frederick Elsworth	Valves, apparatus for lifting, tripping, and regulating the closing of the valves of steam engines.	
	Sloan, James A. (See Oliver Brooks)		
2787	Sloan, Thomas James	Shears, tailors'	
	Smith, John. (See John Taylor.)		
2510	Smith, John C.	Harness, bridles	
2780	Smith, John C.	Harness, bridles	
2534	Smith, John H.	Candles, separating stearine from elaine	
2866	Smith, Nathan	Brakes, self-acting for inclined planes	
2439	Smith, William W.	Printing press, construction of	
2634	Snow, William W.	Furnace, tuyere irons	
2552	Southwick, Joseph.	Tanning by machinery	
2703	Southworth, Frederick H.	Lamps, lard	
2827	Southworth, Frederick H.	Lamps, lard	
2664	Stanley, Henry	Ovens, elevated, valve for	
2428	Stansbury, John and William Ridgaway, jr.	Oakum, picking, combination of machinery for.	

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class
2417	Steiger, William T.....	Spikes, bolts, nails, and brads, cut and wrought.	2
2899	Stellwagen, Henry S.....	Sounding instruments.....	7
2522	Stevens, Benjamin R., and Lemuel Morse.	Daguerreotype impressions, mode of fixing	18
2524	Stevens, Edwin A.....	Steam engine, supplying air to the furnaces of.	6
2700	Stevens, John Hucks, assignee of C. E. Warner.....	Splints, match, cutting.....	14
2821	Stevens, Robert L.....	Constructing steam ships, propelling and turning.	7
2773	Stevens, Robert L.....	Steam engine, locomotive, connecting the driving wheels of.	6
2571	Stillman, Richard and Jesse Taylor.....	Clay, tempering, for bricks.....	15
2739	Stone, Chester, F. K. Collins, and Geo. S. Collins.	Press, cheese, self-acting.....	12
2747	Stone, Chester, F. K. Collins, and Geo. S. Collins.....	Press, cheese, self-acting.....	12
2823	Stoner, Martin. (See Henry Hoover.)	Cutting vegetables, &c.....	17
2749	Stratton, Charles.....	Shave for getting out wooden hoops, &c..	14
2491	Talson, Joseph F.....	Springs for railroad truck.....	10
2714	Tasker, Thomas T.....	Hydrants	11
2717	Tate, George T., and William English.	Hemp, breaking and cleaning	3
2732	Taylor, Jesse.....	Water-wheel	11
	Taylor, Jesse. (See Richard Stillman.)		
2605	Taylor, John, and John Smith.	Napping cloth machine, called cross-napping machine.	3
2651	Taylor, Samuel.....	Loom, brushes for dressing warps.....	3
2762	Tefft, Jairus S.....	Plough.....	1
2438	Thayer, Augustus	Pumps.....	11
2774	Thomas, D. V.....	Sawmill, setting the foot-block of, &c	14
	Thompson, R. H. (See J. H. Bruner.)		
2628	Thompson, William S., and Alfred C. Hobbs.	Knobs, glass.....	2
2572	Timby, Theodore R.....	Raising sunken vessels, &c.....	7
2613	Timby, Theodore R.....	Sleighs, connecting body with runner	10
2582	Timby, Theodore R.....	Stone, dressing	15
	Titcomb, George. (See Stephen Bates.)		
2624	Tomlinson, Stephen	Carriages, spring-perch for.....	10
2855	Traband, Alfred.....	Oils, animal purifying	4
2598	Travor, Philip C	Propelling boats, &c.....	7
2539	Trumbull, Shadrach.....	Beehives	1
2841	Turner, Isaac W	Axes, machine for making	2
2869	Tuttle, Robert M.....	Lock, door, combination tumbler	2
2748	Valentine, Abram S.....	Boilers, steam.....	6
2736	Valentine, Samuel L.....	Water-wheel	11
2898	Valentine, Samuel L.....	Water-wheel	11
2798	Van Hoesen, Levi.....	Loom, weaving fish nets.....	3
2445	Van Hoesen, William C.....	Press, cotton.....	12
2706	Van Pelt, Abraham.....	Tanning hides	16
2558	Von Faber du Faur, Wilhelm. (See Christian, Edward Detmold)		
2421	Waldo, George D	Smut-machine.....	1
2695	Walker, Andrew, jr.....	Stoves, cooking, heating, and illuminating	5
2729	Wallace, Webb, and Joseph Fleming.	Tanning hides by machinery	16
2453	Walter, Lorenzo D. and Jacob.	Screws, bolts, pins, and rivets, making...	2

Alphabetical list of expired patents—Continued.

No.	Patentee.	Invention or discovery.	Class.
2584	Ward, Foster D.	Saddles	16
2573	Ward, Gilbert S.	Umbrellas	21
2733	Ware, Justin	Mill, grinding all kinds of grain	13
2700	Warner, Chauncey F. (See John Hucks Stevens.)	Splints, match, cutting	14
2803	Warren, Edmund	Straw-cutters	1
2548	Watt, George	Plough	1
2843	Webb, Aug. V. H	Lamps for volatile materials	5
2697	Webb, Joseph W	Straw-cutters	1
2547	Welchman, Edward	Resuscitation, apparatus for	20
	Weld, Edward D. (See Josiah N. Bird.)		
2501	Wendt, Hermann	Shears, tailors'	21
2738	West, Uel	Pipes, conduit coupling	11
2596	West, Uel, and Geo. Dobbs	Cocks, stop	11
2754	Whipple, Cullen. (See Alexander Hodges.)	Screws, wood, cutting threads of	2
2528	White, Rollin	Loom, weaving bolting cloth, mounting and using the harness.	3
2673	Whitehead, Jesse	Spinning, regulating the drag of the yarn in the operation of.	3
64	Whitehead, Jesse	Spinning, regulating the drag of the yarn.	Add'nal imp'ts.
2593	Whitin, Nathaniel D	Cocks, or gas stoppers	11
2436	Whitman, Samuel S	Mop holders, manner of constructing	17
	Whitney, Abram. (See Josiah Beard.)		
2665	Whitney, Esau & Jacob, and Wm. F. Card.	Water-wheel, reaction	11
2557	Wiard, Thomas	Plough	1
2583	Widerman, Samuel	Barrels, &c., chamfering, beveling, and howeling.	14
2486	Wilbur, Jeremiah, assignee of Clinton G. Gilroy.	Loom, weaving figured and other fabrics	
2414	Wilkinson, Garner	Window blinds	9
2498	Williams, Samuel	Composition, covering the bottoms of vessels.	4
2447	Wilson, Ebenezer, and Milo Lee.	Butter, working, machines for	1
2500	Wilson, James G., assignee of Thomas Hawkins.	Shears, tailors'	21
2684	Wilson, John	Smut machine	1
2617	Wolfersberger, Frederick	Bee-hives	1
	Wood, Asa. (See Issachar Bates.)		
2813	Wood, James, sr., John Wood, and Wm. W. Wood.	Iron, sheet, manufacturing	2
2622	Woodard, Abijah	Water-wheel	11
2858	Woodward, Joshua	Cisterns, preventing water from freezing	11
2874	Woodward, Thomas	Pens, metalic	18
2609	Woodward, Thomas	Shielded pins for securing shawls, &c	2
	Woodworth, Wm. (See Wm. W. Woodworth.		
	Woodworth, Wm. W	Planing, tonguing, and grooving	Exten'n
2567	Woolley, Williams	Bedstead for the sick	17
2448	Worrall, Zebulon	Lamps, lard	5
2791	Wright, Charles D	Saw-mill—tail blocks of, for setting the log.	14
2648	Wright, George L	Ruling paper	18
2638	Zahm, Godfried M	Lock and key, door	2
2468	Zeigler, William B	Stoves, cooking	5
2432	Zellers, Isaac	Threshing machine, concaves employed in	1
2756	Zollickoffer, William	Bati: g hides	16

Alphabetical list of persons whose patents for designs have expired during the year 1856.

No.	Patentees.	Designs.
215	Baker, Isaac F., assignor to Cornelius & Co	Furniture ornaments.
216	Baker, Isaac F., assignor to Cornelius & Co	Furniture ornaments.
227	Barstow, A. C	Stoves, cooking.
237	Burton, S. H	Stoves.
235	Chambers, George W., assignor to A. Cox & Co	Stoves.
236	Chambers, George W., assignor to A. Cox & Co	Stoves.
249	Clark, Samuel, assignor to Johnson & Cox	Stoves.
250	Clark, Samuel, assignor to Johnson & Cox	Stoves.
251	Clark, Samuel, assignor to Johnson & Cox	Stoves.
210	Fay, Henry C	Stoves.
241	Finch, Edward B	Stoves.
234	Fulton, Calvin, assignor to John M. French	Stoves.
211	Gibbs, Samuel W., assignor to Jones & Finney	Stoves.
222	Gibbs, Samuel W., assignor to Augustus Quackenboss	Stoves.
226	Gibbs, Samuel, W., assignor to North, Harrison & Co	Stoves.
240	Gibbs, Samuel W., assignor to J. Cross & Son	Stoves.
252	Goodhue, D. F., and Charles Guild	Stoves.
219	Haney, Abram, assignor to J. & A. Morrison	Stoves.
221	Haney, Abram, assignor to Morrison & Tibbits	Stoves.
248	Haney, Abram, assignor to Morrison & Tibbits	Stoves.
253	Hill, Samuel, and William B. Cline	Stoves.
228	Hill, Samuel, and William B. Cline	Stoves.
244	Huntley, Hosea H	Stoves.
257	Huntley, Hosea H., assignor to W. C. Davis	Stoves.
238	Jewett, Sherman S., and F. H. Root	Stoves.
229	Lamb, Joseph G., and Conrad Harris	Stoves.
254	Lamb, Joseph G., and Conrad Harris	Stoves,
212	Lawson, Peter	Carpets.
213	Lawson, Peter	Carpets.
214	Lawson, Peter	Carpets.
209	Peck, N. P	Stoves.
243	Pond, Moses	Stove, air-tight.
220	Ransom, Samuel H	Stoves.
224	Ransom, Samuel H	Stoves.
225	Ransom, Samuel H	Stoves.
245	Rathbone, John F	Stoves.
246	Rathbone, John F	Stoves.
247	Rathbone, John F	Stoves.
231	Richmond, Apollos, assignor to A. C. Barstow & Co	Grate, portable.
230	Sanderson, Wm. L., assignor to Pease, Keeney & Gage	Stoves.
355	Sanderson, Wm. L., assignor to Dunham, Coller & Sage	Stoves.
239	Savery, William	Stoves.
256	Shaw, William F	Girandoles.
232	Wager, James	Stoves.
233	Wager, James	Stoves.
242	Wager, James	Stoves.
217	Waring, George E	Stoves.
223	Warnich, Charles W	Stoves.
218	Woolson, Charles J	Stoves.

CLASSIFIED LIST OF PATENTS THAT HAVE EXPIRED DURING THE YEAR 1856.

CLASS I.—AGRICULTURE, *including instruments and operations.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Beehives	Aaron Francis and Jonathan Carlile	Chandlersville, Ohio	Nov. 28, 1842.
Beehives	Daniel H. Farnam	Litchfield, Conn	May 20.
Beehives	Edwin Booth	Springfield, Mass	Nov. 28.
Beehives	Elijah Grumman	Norwalk, Conn	May 26.
Beehives	Frederick Wolfersberger	Plymouth, Ohio	May. 12.
Beehives	Henry Hiser	Wooster, Ohio	June 27.
Beehives	James E. Ross	Mount Sidney, Va	July 8.
Beehives	James Jones	Galway, N. Y	May 12.
Beehives	Jesse W. Davidson	Rome, Ohio	Sept. 17.
Beehives	John Milholland and Benjamin Crane	Chandlersville, Ohio	April 29.
Beehives	Shadrach Turnbull	Suffield, Conn	April 6.
Beehives	Wm. Bryant	Nashville, Tenn	Dec. 21.
Beehives	Zachariah R. Hench	Port Royal, Pa	Oct. 12.
Butter, working, machines for	Ebenezer Wilson and Milo Lee	Redding, Conn	Feb. 7.
Butter, working, machines for	Seth Bishop	Redding, Conn	Jan. 8.
Churn	Daniel F. Hitt	Galena, Ill	Oct. 7.
Churn	Lemuel Adams	Redding, Conn	April 16.
Churn	Noah H. Lindley	Redding, Conn	Aug. 25.
Churn	Roderick Goodwin	North Bergen, N. Y	May 4.
Corn-rows, &c., laying off	Peter Moseley	Benton, Miss	Dec. 12.
Corn-shellers	Cyrus B. Baldwin	Cincinnati, Ohio	July 16.
Cultivator	Issachar Bates, Asa Wood, and David Wells.	Adams, N. Y	May 28.
Cultivator	Samuel Brady	Salona, Pa	April 6.
Cultivator, cotton	William A. Rogers	Sommerville, Ala	April 1.
Cultivator, for vines	John Mason	Union, N. J	May 28.
Mowing, cutting and cleaning grain	Charles Brown and Francis S. Crans	Barton, N. Y	April 6.
Mowing, scythes, fastening the nibs of	Samuel Garfield, sr., assignee of Thos. W. Harvey	Jamestown, N. Y New York	April 6.
Plough	Barnabas Langdon	Troy, N. Y	June 22.

Plough	Cornelius Berger	Brooklyn, N. Y	May 16, 1842.
Plough	George Watt	Gainesville, Ala	April 11.
Plough	Hiram L. Norton	Granville, N. Y	Sept. 23.
Plough	Jairus S. Tefft	Amherst, N. Y	Aug. 25.
Plough	Nathan Hull	De Kalb, Miss	May 12.
Plough	Samuel Myers	Marion, Ohio	July 11.
Plough	Thomas Wiard	Avon, N Y	April 16.
Plough beams	Joel Houghton	Ogden, N. Y	June 22.
Plough, combined	James Parsons, jr	Dublin, Ind	Dec. 12.
Plough, cultivating	Marshall J. Hunt	Cincinnati, Ohio	Sept. 30.
Plough, prairie land	Cromwell K. Bartlett	Geneseo, Ill	March 28.
Plough, revolving, coulter for	Howard Delono	Mottsville, N. Y	April 1.
Plough, shovel	William C. Pagett	Green county, Ohio	Oct. 17.
Reaping machine	Jonathan Read	New York	March 12.
Seeding, seed planters	Wells Kilburn	Lawrenceville, Pa	June 11.
Smut-machine	George D. Waldo	Lockport, N. Y	Jan. 17.
Smut-machine	John Wilson	Gentsville, S. C	June 22.
Smut-machine, cleaning grain	Daniel Flickinger and Sebastian Krim	Hanover, Penn	May 28.
Smut-machine, cleaning grain	Josiah N. Bird and Edward D. Weld	Trenton, N. J	March 28.
Smut-machine, cleaning grain, &c	Peter Cook	Westfield, N. Y	Jan. 17.
Smut-machine, separating garlic from wheat	Samuel Fahrney	Boonsboro', Md.	Oct. 26.
Straw-cutters	Edmund Warren	New York	Oct. 7.
Straw-cutters	Joseph W. Webb	Mount Morris, N. Y	July 2.
Threshing-machine	Jesse Bowles	Louisa, Va	June 11.
Threshing-machine and winnowing grain	Andrew Ralston	Hopewell, Penn	Feb. 21.
Threshing-machine, concaves employed in	Isaac Zellers	Greenwich, N. J	Jan. 24.

CLASS II.—METALLURGY, *and manufacture of metals, and instruments therefor.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Auger for boring earth	John M. Cooper	Newbern, Ala	Oct. 7, 1842.
Axes, machine for making	Isaac W. Turner	Baltimore, Md	Nov. 4.
Bolts, trimming the heads of	Micah Rugg	Southington, Conn	Aug. 31.
Cutlery, cleaning and polishing	Martin N. Armstrong	Williamsburg, N. Y	Jan. 24.

Classified list of patents expired—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Furnace, &c., heating	Christian Edward Detmold, assignee of Wilhelm Von Faber Du Faur	New York / Wurtemberg	April 16 1842, antedated Nov. 12, 1841.
Furnace, &c., reverberatory	Claude S. Quilliard	Rondout, N. Y.	Jan. 8.
Furnace, improvement in	Jeremiah Clute and Jacob Seabury	Cohoes, N. Y.	Dec. 5.
Furnace, puddling and refining iron	Peter Cooper, assignee of John S. Gustin.	New York	Aug. 2.
Furnace, refining iron	John C. McManaway	Portsmouth, Ohio	June 22.
Furnace, smelting, constructing	Frederick C. Kropff.	Bedford, Penn	Jan. 17.
Furnace, smelting iron	Jacob Van Reed Hunter.	Rockland, Penn	July 23.
Furnace, tuyeres	Richard Brewer.	Plymouth, Ohio.	Nov. 21.
Furnace, tuyere irons	William W. Snow.	Oreonta, N. Y	May 20.
Gold, washing	Peter L. Dauvergne.	Clarksville, Ga.	Sept. 17.
Hinges, window-blinds and fastenings	William Baker	Utica, N. Y	Sept. 17.
Horse-shoes for the relief and cure of hoof-bound horses.	Daniel Homer	Alton, Ill	April 16.
Iron, sheet, manufacturing	James Wood, sen., John Wood, and Wm. W. Wood.	New Castle, Del	Oct. 12.
Iron, sheet, manufacturing	Simeon Guilford	Lebanon, Penn	Oct. 28.
Knobs, glass	William S. Thompson and Alfred C. Hobbs	Cambridge, Mass / Boston, Mass.	May 20.
Latch and lock, gravitating, combined, for doors.	Miles Greenwood, assignee of George E. Sellers.	Cincinnati, Ohio	May 12.
Latch, door, right and left	Miles Greenwood, assignee of George E. Sellers.	Cincinnati, Ohio	May 7.
Latch, thumb, for doors	Edmund Parker	Meriden, Conn	March 28.
Lock, door	John P. Sherwood	Sandy Hill, N. Y.	Dec. 17.
Lock, door, combination tumbler	Robert M. Tuttle	Newark, N. J.	Dec. 5.
Lock and key, door	Godfried M. Zahm	Lancaster, Penn	May 26.
Lock and latch knobs, fastening to their spindles, &c.	Andrew O. Downer	Utica, N. Y.	Dec. 21.
Lock or latch, check bolt of	Albert Bingham	Boston, Mass.	Oct. 17.
Metal, plates or sheets of, cutting	Mahlon Gregg	Wilmington, Del.	April 1.
Metallic surfaces, particularly saw plates, grinding and polishing.	Richard M. Hoe	New York	May 30.

Nails cutting, machinery for	Frederick J. Ayres	Roxbury, Mass	July 2, 1842.
Padlocks	E. H. Roper and Wm. Ball	Washington, D. C	Nov. 9.
Padlocks	William Ball	Washington, D. C	April 16.
Padlocks for mail bags, &c	H. C. Jones	Newark, N. J	April 1.
Punching machine for the manufacture of covered buttons.	Alonzo C. Arnold	Norwalk, Conn	April 23.
Ropes wire, method of and machinery for manufacturing.	John A. Roebling	Saxonburg, Penn	July 16.
Screws, bolts, pins, and rivets, making	Lorenzo D. Walter and Jacob Walter	Fort Plain, N. Y. Springfield, N. Y.	Feb. 7.
Screws, wood, cutting threads of	Alexander Hodges, *agent* of New England Screw Company, *assignee* of Cullen Whipple.	Providence, R. I.	Aug. 18.
Shielded pins for securing shawls, &c	Thomas Woodward	Brooklyn, N. Y.	May 7.
Spikes, &c., clinching	William Emmons	New York	Sept. 3.
Spikes, bolts, nails, and brads, cut and wrought	William F. Steiger	Washington, D C	Jan. 8.
Spikes, brads, and nails, clinching	James Buckalew	Spottswood, N. J	Sept. 3.
Spoons, casting, forming moulds for	Luther Boardman	Chester, Conn	Oct. 7.
Window-sash, spring fastener	George W. and Ezra B. Robinson	Boston, Mass	Feb. 7.

Class III.—Manufactures of fibrous and textile substances, *including machines for preparing fibres of wool, cotton, silk, fur, paper, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bonnets, &c, machinery for pressing	Richard Murdoch	Baltimore, Md	Oct. 12, 1842.
Carding and spinning machines	Moses Chase	Baltimore, Md	March 23.
Felting for coats, hats, &c	Marmaduke Osborne	New York	May 28.
Flax and hemp, breaking	John P. Fry	Pulaski, Tenn	Dec. 21.
Flax and hemp, breaking and cleaning	William McMillen	Ripley, Ohio	Sept. 30.
Flax and hemp, cleaning and dressing	J. C. G. W. and C. E. Geisendorff	Cincinnati, Ohio	Nov. 28.
Flax and hemp, cleaning and heckling	Charles Learned	St. Louis, Mo	Oct. 22.
Furs, process of blowing and cleaning	John W. Cochran	New York	Nov. 4.
Gin, cotton, saw cylinder for	Alexander Jones	New York	July 20.

Classified list of patents expired—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Gin roller, for ginning long staple cotton	Eleazer Carver	Bridgewater, Mass	Jan. 17, 1842.
Gin saw, for ginning cotton	Theodoric I. James	Princeton, Mass	May 7.
Hats, cassimere	Oliver Brooks and James A. Sloan	Philadelphia, Penn	Nov. 9.
Hats, setting or ironing brims of	Francis Degen	New York	Aug. 31.
Hemp, breaking and cleaning	George T. Tate and William English	Frankford, Mo	July 11.
Knitting stockings, &c.	Arasmus French	Springfield, Mass	March 18.
Loom, brushes for dressing warps	Samuel Taylor	Lowell, Mass.	May 28.
Loom, power	Caleb Duxbury and James Nield	Taunton, Mass	April 21.
Loom, power, rotary temples for	George Draper	Saugus, Mass.	Feb. 21.
Loom, power, weaving carpets, &c	Thomas Flint	Boston, Mass	June 27.
Loom, power, weaving counterpanes, &c.	Erastus B. Bigelow	Lancaster, Mass	July 28; antedated May 1.
Loom, power, weaving counterpanes, &c	Erastus B. Bigelow	Lancaster, Mass	Aug. 2; antedated May 1.
Loom, securing the bobbin in shuttles for weaving.	Daniel Leavitt	Cabotville, Mass	Aug. 18.
Loom, temples for	Josiah Beard and Abram Whitney	Waltham, Mass.	April 6.
Loom, weavers' shuttles	Roswell Douglass, assignee of John H. Coburn.	Lowell, Mass.	March 12.
Loom weaving.	Benj. W. and Horace Hendrick	Woonsocket Falls, R. I	May 12.
Loom, weaving bolting cloth, mounting and using the harness.	Rollin White	Williamstown, Vt.	April 1.
Loom, weaving carpets, &c.	Erastus B. Bigelow	Lancaster, Mass	May 16; antedated May 1.
Loom, weaving carpets, &c	Erastus B. Bigelow	Lancaster, Mass	May 26; antedated May 1.
Loom, weaving counterpanes, &c., manner of mounting, improvement on patent of April 24, 1840.	Erastus B. Bigelow	Lancaster, Mass	May 30; antedated May 1.
Loom, weaving figured and other fabrics	Jeremiah Wilber, assignee of Clinton G. Gilroy	New York Great Britain	March 12; antedated Nov. 12, 1839.
Loom, weaving fish-nets	Levi Van Hoesen	New Haven, Conn.	Oct. 7.
Napping cloth machine, called cross napping machine.	John Taylor and John Smith	New Lebanon, N. Y	May 4.

Oakum, picking, &c	Otis Allen	Tewksbury, Mass	July 16, 1842.
Oakum, picking, combination of machinery for	John Stansbury and William Ridgaway, jr.	Baltimore, Md	Jan. 17.
Paper, &c, applying paste or sizing to sheets of, in process of making cards, &c.	David H. Gilbert	Dorchester, Mass	April 11.
Paper, sizing	Lorenzo D. Brown	Lee, Mass	March 4; antedated Sept. 4, 1841.
Shearing satinets and other woollen cloths	James Pitts	Smithfield, R. I	Oct. 17.
Silk, reel for reeling	A. B. Jones, assignee of William H. Jones.	Manchester, Conn.	Feb. 12.
Spinning, cap-spinner, mode of driving bobbins in	Charles Danforth	Paterson, N. J	April 21.
Spinning, cap-spinner, oiling spindles and tubes of.	Charles Danforth	Paterson, N. J	April 21.
Spinning, regulating the drag of the yarn in the operation of.	Jesse Whitehead	Manchester, Va	June 18.
Spinning, twisting, and kinking hair	Hiram Burnham	New York	June 22.
Wool-combing, machine for	Charles G. Sargent	Lowell, Mass	Oct. 7.

CLASS IV.—CHEMICAL PROCESSES, MANUFACTURES, AND COMPOUNDS, *including medicine, dyeing, color making, distilling, soap and candle making, mortars, cements, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Blacking for leather	Samuel Adams	Cleveland, Ohio	May 30, 1842.
Candles, manufacture of	Ebenezer Marsh	Alton, Ill	April 30.
Candles, separating stearine from elaine	John H Smith	Brooklyn, N. Y.	April 1.
Composition, covering the bottoms of vessels	Samuel Williams	New York, N. Y.	March 18.
Composition for dressing leather to render it water proof.	William A. Ronald and Henry Miller	Rowan county, N. C	Jan. 24.
Composition for preserving leather	T. P. Meriam	New Bedford, Mass	Nov. 4.
Composition for the hair	James Mackay	New York	April 6.
Composition, preparation for the hair	Vair Clirehugh	New York	April 11.
Composition, rendering cloth water proof	Nathaniel Hatch	Eastport, Maine	March 23.
Composition, water proof	Charles Lyon	New York	Sept. 23.
Gas metres	Christopher F. Brown	Baltimore, Md	June 22.
Glue, manufacture of	Herman G. C. Paulsen	New York	Feb. 28.
Ink, black, making	Peter Ferris	Greenwich, Conn	Dec. 5.
Matches, friction, ignitable compound	Stephen Blaisdell	Brunswick, Maine	March 18.
Matches, friction, improvement in	George W. Carleton	Bath, Maine	May 20.
Oils, animal, purifying	Alfred Traband	New York	Nov. 21.
Paint, white, mode of preparing	Henry C. Otto	Philadelphia, Penn	Feb. 28.
Salt works, improvement in	Calvin Giteau	Geddes, N. Y.	July 23.
Tallow, rendering	L. Montrop	Baltimore, Md	June 27.
Vinous fermentation	Charles C. Edday	Benton, Miss.	April 1; antedated Mar. 4.

CLASS V.—CALORIFICS, *comprising lamps, fire-places, stoves, grates, furnaces for heating buildings, cooking apparatus, preparation of fuel, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Chimney caps	Jordan L Mott	New York	Dec. 17, 1842.
Chimney caps	Jordan L. Mott, assignee of Thomas Ewbank.	New York	Dec. 17.
Chimney cowls	Stephen M. Allen	Boston, Mass	April 21.
Coal sifters	John J. Doane and William H. Denny	New York	Nov. 28.
Flue contractors, or chimney valves for fireplaces and grates.	Henry Batchelder	Beverly, Mass	Jan. 8.
Furnaces, cooking and air-heating	Otis Packard	Roxbury, Mass	May 26.
Grates, open	James Easterly	Troy, New York	May 16.
Heating buildings	Reuben Mitchell	Portland, Maine	April 11.
Heating buildings, apparatus for	Otis Packard	Roxbury, Mass	March 9.
Kiln for drying grain	Henry Y. and Abraham Haupt, jr.	Bucks county, Penn	Dec. 5
Lamps	Edwin B. Horn	Boston, Mass	Jan. 8.
Lamps	William F. Shaw	Boston, Mass	Dec. 31.
Lamps, argand, spirits of turpentine, &c, burning.	Charles Carr	Philadelphia, Penn	March 28.
Lamps, argand, volatile materials, burning	Daniel Pettibone	Philadelphia, Penn	March 23.
Lamps, essential oils, burning	Michael B. Dyott	Philadelphia, Penn	May 30.
Lamps for volatile materials	A. V. H. Webb	New York	Nov. 4.
Lamps, glass, caps of	Francis Draper	East Cambridge, Mass	Jan. 17.
Lamps, hydro-pneumatic	Stephen S. Lee	Providence, R. I	April 21.
Lamps, lard	Archibald H Baird	New York	May 26.
Lamps, lard	Benjamin H. Horn	Boston, Mass	May 26.
Lamps, lard	Ellis S Archer	Philadelphia, Penn	June 18.
Lamps, lard	Frederick H Southworth	Washington city, D. C	July 2.
Lamps, lard	Frederick H. Southworth	Washington, D. C	Oct. 22.
Lamps, lard	Jesse Neal, part inventor with and assignee of—	Middlebury, Ohio	May 4.
	Benjamin K. Maltby	Rootstown, Ohio	
Lamps, lard	John Grannis	Oberlin, Ohio	Aug. 25.
Lamps, lard	John Lee	Wellsville, Ohio	Nov. 21

Classified list of expired patents—Continued.

Inventions or discoveries.	Patentees	Residence.	Date of patent.
Lamps, lard	John T. Creighton	Alexandria, Va	Aug. 11, 1842.
Lamps, lard	P. Robinson	Chillicothe, Ohio	Dec. 5.
Lamps, lard	Zebulon Worrall	Chesterhill, Ohio	Feb. 7.
Lamps, wick tubes for	Enoch W. Perry	Boston, Mass	Oct. 12
Lamps and reflectors of light-houses, arranging, &c.	Aaron Folger	Nantucket, Mass	March 28.
Ovens, elevated, valves for	Henry Stanley	West Poultney, Vt	June 11.
Ranges, cooking	John Brereton	New York	April 21.
Screening or sifting coals	Benjamin S. Hort	Kensington, Penn	Feb. 7.
Stoves	Abel Cornell and Niram R. Merchant	Guilford, N. Y	July 16.
Stoves	George Nelson	Boston, Mass	Sept. 17.
Stoves	Stedman W. Hanks	Lowell, Mass	Oct. 12.
Stoves	Philetus Phillips	Middletown Point, N. J	Nov. 12.
Stoves, air-heating	Salvin F. Kellogg	Norwalk, Ohio	April 16.
Stoves, air-tight	Stephen M. Allen	Boston, Mass	Jan. 17.
Stoves, air-tight	Zephaniah Bosworth	Marietta, Ohio	April 6.
Stoves, cooking	Anson Atwood	Troy, N. Y	May 4.
Stoves, cooking	Erastus Buck	Nunda, N. Y	Aug. 6.
Stoves, cooking	Samuel B Sexton	Baltimore, Md	April 29.
Stoves, cooking	William Beebe	New York	July 8.
Stoves, cooking	William B. Zeigler	Huntingdon, Penn	Feb. 21.
Stoves, cooking, elevated ovens, with	Moses Bartholomew	Vershire, Vt	July 2.
Stoves, cooking, heating and illuminating	Andrew Walker, jr	Unity, N. H	June 27.
Stoves, cooking, semi-circular	Thomas O Sayre	Elizabethtown, N. J	March 23.
Stoves, cooking, tubular, &c	Jordan L. Mott	New York, N. Y	March 23.
Stoves, cooking, utensils for	Salmon C Riley	New York	Aug. 31.
Stoves, culinary and air-heating	Benjamin Shepard	Boston, Mass	May 30.
Stoves, Franklin, burning coal	David Petree	Little Falls, N. Y	March 23.
Stoves, regulating the draft in	Elisha Foote, jr	Seneca Falls, N. Y	May 26.
Stoves, rotary-top	Ira French, assignee of Maynard French	Cincinnati, Ohio	June 11.

CLASS VI.—STEAM AND GAS ENGINES, *including boilers and furnaces therefor, and parts thereof.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Air condensing, apparatus for, &c.	John Gregg	Rochester, N. Y.	Jan. 24, 1842.
Boilers, steam	Abram S. Valentine	Bellefonte, Pa.	August 6.
Boilers, steam	Charles Clinton	Goshen, N. Y.	April 29.
Boilers, steam, applying a float to regulate the height of water in.	Cadwallader Evans	Pittsburg, Pa.	Sep. 30.
Boilers, steam, gauge, steam safety	John A. Roebling	Saxonburg, Pa.	July 16.
Boilers, steam, and generators	Lansing E. Hopkins	New York	June 18.
Boilers, steam, or generator	Austin W. Sharp and William F. Horton.	Honoeye Falls, N. Y.	Dec. 5.
Explosion of boilers, preventing	Thomas S. Easton	Mobile, Ala.	Feb. 12.
Explosion of boilers, preventing	Thomas S. Easton	Mobile, Ala.	Nov. 9.
Gas metres	John Hemming	Great Britain	Nov. 4.
Spark arrestors	Abraham, Keagy, and Michael Shimer	Woodbury, Pa.	April 29.
Spark arrestors	James Eckler	Catskill, N. Y.	Oct. 7.
Spark arrestors	James Lewis	Saratoga, N. Y.	Feb. 21.
Spark arrestors	John C. Johnston	Catskill, N. Y.	Feb. 28.
Spark arrestors	John V. L. Hoagland	Jersey City, N. J.	March 18.
Spark arrestors	Jonathan Hodges	Taunton, Mass.	June 22.
Spark arrestors	Louis Chevrier	Brooklyn, N. Y.	Feb. 21.
Spark arrestors	Samuel G. Brown	Henrietta, N. Y.	Sep. 23.
Spark arrestors	William C. Grimes	York, Pa.	Feb. 12.
Spark arrestors and consumers	Abraham Ayres	Hicksville, N. Y.	Feb. 28.
Steam engine	Alexander Connison	Newark, N. J.	Dec. 5.
Steam engine	Ralph Pomeroy	Belleville, N J.	Jan. 24.
Steam engine	William Kelly	Pittsburg, Pa.	June 18.
Steam engine, changing reciprocating into rotary motion.	Alexander M. Bouton and Andrew Perry.	Newark, N. J.	Aug. 18.
Steam engine, conducting off the steam from the cylinder.	George W. and George Davis.	Canal Fulton, Ohio	May 4.
Steam engine, discharging water and air from condensers of.	Robert G. Eunson	New York	Sep. 23.
Steam engine, locomotive, connecting the driving wheels of.	Robert L. Stevens	New York	Sep. 3.

Classified list of expired patents—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Steam engines, locomotive, constructing by which they adapt themselves to the curves and undulations of the road.	Matthias W. Baldwin	Philadelphia, Pa	Aug. 25, 1842.
Steam-engine, marine	Joseph Maudslay and Joshua Field	Lambeth, England	June 11; antedated May 7, 1839.
Steam-engine, marine	William A. Lightall	Albany, N. Y.	April 11.
Steam-engine, reacting, &c	Louis Brunier	France	Oct. 25.
Steam-engine, rotary	Joseph J. Parker	Plymouth, Ohio	March 18.
Steam-engine, rotary	Joshua Taylor Beale and Benjamin Beale.	East Greenwich, England	June 11; antedated July 13, 1841.
Steam-engine, rotary	Solomon M. Eby and David N. Phelps	Wayne county, Ohio Richland county, Ohio	Aug. 26.
Steam-engine, rotary	William Jones and Roswell Farnum	Bradford, Vt	Dec. 31.
Steam-engine, rotary, propelled by steam, water, &c.	Henry Pratt	Great Britain	March 28.
Steam engine, rotary, propelled by water or steam	Peckham H. Green and Harry H. Evarts.	Mount Morris, N. Y.	March 9.
Steam-engine, supplying air to the furnaces of	Edwin A. Stevens	Bordentown, N. J.	April 1.
Steam-generator, improvement in	Isaac N Lesh, Silas W. Lesh, Jacob Deardoff, and Zachariah Beeson.	Wayne county, Ind.	June 27.
Valves, apparatus for lifting, tripping, and regulating the closing of the valves of steam-engines.	Frederick Elsworth Sickels	New York	May 20.
Valves, cut off for steam-engines	Horatio Allen	New York	April 30.
Valves, cut off for steam-engines	Stephen Parks, jr.	Brooklyn, N. Y.	June 11.

CLASS VII.—NAVIGATION AND MARITIME IMPLEMENTS, *comprising all vessels for conveyance on water, their construction, rigging, and propulsion, diving-dresses, life-preservers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
69 Anchors	John J. Osborne, assignee of William H. Porter.	New York / Great Britain	March 18; antedated August 15, 1839
Capstans or windlasses, ships', and cable-stoppers	John Grylls	Portsea, England	Dec. 12; antedated December 31, 1840.
Constructing paddle-wheels, and combining the same with steam-vessels.	Alexander Connison	Newark, N. J.	June 18, 1842.
Constructing ships, boats, &c, to be propelled by steam or other power.	Elisha F. Aldrich	New York	July 8.
Constructing steam-ships, propelling and turning.	Robert L. Stevens	New York	Oct. 17.
Life-preservers, rendering chairs, &c., buoyant	William H. Shecut	New York	March 9.
Navigating and propelling vessels by wind and waves.	John A. Etzler	Philadelphia, Pa	April 1; antedated November 20, 1841.
Navigation, steam, by which the submerged propeller is made to operate as an air-pump and condenser.	William W. Hunter	Gosport, Va	March 12, 1842.
Propelling and steering boats, &c	Thomas L Jones	New York	July 16.
Propelling boats, &c	Philip C. Traver	Rhinebeck, N. Y	April 30.
Propelling boats, &c., segmental spiral propellers	John Laing	Ellicott's Mills, Md	Oct. 22.
Propelling boats and extinguishing fire	Stephen Bates and George Titcomb	Boston, Mass.	March 4; antedated September 4, 1841.
Propelling boats by endless chains of paddles	Appleton Bragg	New York	Jan. 24, 1842.
Propelling boats by jets of water.	Thomas W. Reily	McMinn county, Tenn	Jan. 24.
Propelling paddle-buckets, &c.	A Ralston Chase	Cincinnati, Ohio	Nov. 9.
Propelling ships and other vessels	Daniel Rudd	Bozrah, Conn.	March 23.
Propelling steamboats and other vessels	Truman Cook	New York	May 12.
Raising sunken vessels, &c	Theodore R. Timby	Auburn, N. Y.	April 21.
Sails, measuring, instrument for	John Domines	Now residing in the Sandwich Islands.	Sept. 30.
Sounding instruments	Henry S Stellwagen	U. S. Navy	Dec. 31.
Steering apparatus for vessels	George W. and Ezra B. Robinson	Boston, Mass.	Sept. 30.
Steering-wheel for vessels	Philip T. Share	Baltimore, Md	Nov. 28.

Classified list of patents expired—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Vessels' lining, constructed of sheet iron	James Kerr, William Grant, and John Potter.	Pittsburg, Pa	May 7, 1842.
Windlass, ships'	William Carr	Bath, Me	Feb. 7.
Windlass and capstan, method of working ships'	William Holmes	Baltimore, Md	Mar. 23.

CLASS VIII.—MATHEMATICAL, PHILOSOPHICAL, AND OPTICAL INSTRUMENTS, *including clocks, chronometers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Clocks, self-winding	Evans, Casselberry	St. Louis, Mo	Aug. 2, 1842.
Escapement of watches	John H. Mulford	Albany, N. Y	Feb. 21.
Galvanic battery, &c	Patrick Coad	Philadelphia, Pa	Mar. 28.
Geography and astrography, apparatus for teaching	Robert Piggot	Elk Ridge Landing, Md	Jan. 17.
Surveying instruments	Benjamin H. Benton	Middleburg, Va	Dec. 12.
Surveys, instruments for plotting	William J. Card	Lancaster, Ohio	April 16.
Telegraphs	Samuel Frew	Elizabeth, Penn	July 2.

docks, rivers, weirs, dams, and other internal improvements, buildings, roofs, &c.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bridge, manner of crossing rivers, &c., by means of a moving platform suspended to a.	Harvey Leach	Philadelphia, Pa.	Mar. 4, 1842.
Dock, floating dry	John S. Gilbert	New York	July 28.
Dock, floating dry	Selah Hill	Jersey City, N. J	Feb. 1.
Excavating ditches	Herrick Aiken	Franklin, N. H	Feb. 1.
Excavating, ditching, and embanking earth	Horace Cleveland	Fort Wayne, Ind	Dec. 31.
Excavating, ditching, and embanking, scraper for.	John Branson, jr	Sangamon county, Ill.	Mar. 18.
Excavating, ditching, embanking, and draining prairie lands, &c.	Cromwell K. Bartlett	Geneseo, Ill.	Mar. 23.
Pipes, inserting branch-pipes through the ground without excavating.	Jonathan Ridgway	New York	July 16.
Roofing, cast-iron	William Beach	Philadelphia, Pa.	April 23.
Roofs, metallic, rendering, water-tight	John U. Boesch	Charleston, S C.	Nov. 12.
Window-blinds	Garner Wilkinson	White Creek, N. Y.	Jan. 8.
Window-shutters or guards	Arthur L. Johnson	Baltimore, Md.	April 11.

—LAND CONVEYANCE, *comprising carriages, cars, and other vehicles used on roads, and parts thereof.*

	Patentees.	Residence.	Date of patent.
f spring	Samuel Guss, assignee of	West Chester, Penn	June 18, 1842.
	William Clayton	Marshalton, Penn	
r operating.	John R. Grout	Utica, N. Y.	Aug. 25.
es	Nathan Smith	Waterloo, N. J.	Nov. 28.
	Jacob Harlacher	Lancaster, Penn	Nov. 4.

Classified list of patents expired—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Vessels' lining, constructed of sheet iron	James Kerr, William Grant, and John Potter.	Pittsburg, Pa	May 7, 1842.
Windlass, ships'	William Carr	Bath, Me	Feb. 7.
Windlass and capstan, method of working ships'	William Holmes	Baltimore, Md	Mar. 23.

CLASS VIII.—MATHEMATICAL, PHILOSOPHICAL, AND OPTICAL INSTRUMENTS, *including clocks, chronometers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Clocks, self-winding	Evans, Casselberry	St. Louis, Mo	Aug. 2, 1842.
Escapement of watches	John H. Mulford	Albany, N. Y	Feb. 21.
Galvanic battery, &c	Patrick Coad	Philadelphia, Pa	Mar. 28.
Geography and astrography, apparatus for teaching	Robert Piggot	Elk Ridge Landing, Md	Jan. 17.
Surveying instruments	Benjamin H. Benton	Middleburg, Va	Dec. 12.
Surveys, instruments for plotting	William J. Card	Lancaster, Ohio	April 16.
Telegraphs	Samuel Frew	Elizabeth, Penn	July 2.

docks, rivers, weirs, dams, and other internal improvements, buildings, roofs, &c.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bridge, manner of crossing rivers, &c., by means of a moving platform suspended to a.	Harvey Leach	Philadelphia, Pa.	Mar. 4, 1842.
Dock, floating dry	John S. Gilbert	New York	July 28.
Dock, floating dry	Selah Hill	Jersey City, N. J	Feb. 1.
Excavating ditches	Herrick Aiken	Franklin, N. H	Feb. 1.
Excavating, ditching, and embanking earth	Horace Cleveland	Fort Wayne, Ind	Dec. 31.
Excavating, ditching, and embanking, scraper for.	John Branson, jr	Sangamon county, Ill	Mar. 18.
Excavating, ditching, embanking, and draining prairie lands, &c.	Cromwell K. Bartlett	Geneseo, Ill	Mar. 23.
Pipes, inserting branch-pipes through the ground without excavating.	Jonathan Ridgway	New York	July 16.
Roofing, cast-iron	William Beach	Philadelphia, Pa	April 23.
Roofs, metallic, rendering, water-tight	John U. Boesch	Charleston, S C	Nov. 12.
Window-blinds	Garner Wilkinson	White Creek, N. Y	Jan. 8.
Window-shutters or guards	Arthur L. Johnson	Baltimore, Md	April 11.

Class X.—Land conveyance, *comprising carriages, cars, and other vehicles used on roads, and parts thereof.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Brake or lock for arresting the motion of spring carriages	Samuel Guss, assignee of William Clayton	West Chester, Penn Marshalton, Penn	June 18, 1842.
Brakes of railroad cars, machinery for operating.	John R. Grout	Utica, N. Y	Aug. 25.
Brakes, self-acting, for inclined planes	Nathan Smith	Waterloo, N. J	Nov. 28.
Carriages, disengaging horses from	Jacob Harlacher	Lancaster, Penn	Nov. 4.

Classified list of patents expired—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Carriages, releasing horses from	George Kintzi	Exeter, Penn	May 4, 1842.
Carriages, spring perch for	Stephen Tomlinson	Bridgeport, Conn	May 16.
Sleighs, connecting body with runner	Theodore R. Timby	Auburn, N. Y	May 7.
Sleighs or sleds, mode of locking	John C. Rickey	New Cumberland, Ohio	July 16.
Springs for carriages	Jonathan Bacon	Bedford, Mass	March 9.
Springs for railroad truck	Joseph F. Talson	Jersey City, N. J	March 18.
Tires, putting on wheels of railroad cars	Thomas Banks	Manchester, England	Aug. 25.
Wheels, felloes of carriage, machinery for shaping the inner side of.	Robert H. Henry	Barre, Mass	Nov. 21.

CLASS XI.—HYDRAULICS AND PNEUMATICS, *including water-wheels, wind-mills, and other implements operated on by air or water, or employed in the raising and delivery of fluids.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Boring and tapping water and other pipes while under hydrostatic pressure.	H. Ariel Norris	New York	June 22, 1842.
Boring, tapping, and reaming water pipes under hydrostatic pressure.	H. Ariel Norris	New York	Sept. 30.
Cisterns, preventing water from freezing	Joshua Woodward	Haverhill, N. H	Nov. 21.
Cocks, manufacture of	Charles A. Creasey	Philadelphia, Penn	April 29.
Cocks or gas stoppers	Nathaniel D. Whitin	New York	April 29.
Cocks, stop	Jonathan Ridgway	New York	April 16.
Cocks, stop	Uel West and George Dobbs	New York	April 30.
Cocks, stop, for hydrants	Levi Magers, Frederick Davis, and Wm. Dukehart.	Baltimore, Md	June 22.

Engine, pneumatic	John R. Remington	Aberfoil, Ala	May 26, 1842.
Filters	Thomas Bishop	Dobbs' Ferry, N. Y	Dec. 31.
Gate, self-acting waste	Edwin Eastlack and Joseph A. Miller	Greenwich, N. J	April 21.
Hydrants	John Lee Chapman	Baltimore, Md	Oct. 12.
Hydrants	Thomas T. Tasker	Philadelphia, Penn	July 11.
Hydraulic machines	Louis Brunier	France, (now in city of New York)	July 8.
Pipes conduit, coupling	Uel West	New York	July 23.
Pumps	Augustus Thayer	Chatham, N. Y	Feb. 1.
Pumps	William and Benjamin Douglas	Middletown, Conn	Dec. 31.
Pumps	William L. Jacobs	Lancaster, Penn	Sept. 23.
Pumps and fire engines	Benjamin T. Babbitt	Little Falls, N. Y	Oct. 7.
	Shuler C. Higbee and Peter W. Plantz	Oppenheim, N. Y	
Pumps, liquor	Henry Rodgers	Moravia, N. Y	September 17.
Water-wheel	Abijah Woodard	Swanzey, N. H	May 12.
Water-wheel	Amasa B. Beckwith	Bath, N. Y	July 2.
Water-wheel	Eli B. Lansing	Wheeling, Ind	July 16.
Water-wheel	Jesse Taylor	Auburn, N. Y	July 20.
Water-wheel	Joseph Durkee	Binghampton, N. Y	August 25.
Water-wheel	Lemuel W. Blake and George W. Blake.	Pepperell, Mass	April 21.
Water-wheel	Reuben Rich	Albion, N. Y	July 8.
Water-wheel	Samuel B. Howd	Arcadia, N. Y	April 30.
Water-wheel	Samuel Diehl	Manallen, Penn	May 4.
Water-wheel	Samuel L. Valentine	Bangor, Me	July 23; antedated March 28.
Water-wheel	Samuel L. Valentine	Bangor, Me	December 31.
Water-wheel	William Lamb	Whitestown, N. Y	April 11.
Water-wheel, &c., adjustable boxes, &c.	Charles Joly	New York	February 7.
Water-wheel, current	William Miles	Boonsboro', Md	October 26.
Water-wheel, inclined	John T. Gilmore	Fayetteville, N. C	December 31.
Water-wheel, reaction	Esau Whitney, Jacob Whitney, and Wm. F. Card.	Burns, N. Y	June 11.
Wind-mills	Alexander McGrew	Cincinnati, Ohio	August 2.
Wind-wheels	John R. Remington	Aberfoil, Ala	June 18.

CLASS XII.—LEVER, SCREW, AND OTHER MECHANICAL POWER, *as applied to pressing, weighing, raising, and moving weights.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Press, cheese	Sylvanus Bartlett	Hocking county, Ohio	February 28, 1842.
Press, cheese, self-acting	Chester Stone	Rootstown, Ohio	July 28.
	Fitch K. Collins and George S. Collins	Ravenna, Ohio	
Press, cheese, self-acting	Chester Stone	Rootstown, Ohio	August 6.
	Fitch K. Collins and George S. Collins	Ravenna, Ohio	
Press, cotton	Parry W. Porter	Columbia, Tenn	August 11.
Press, cotton	William C. Van Hoesen	Catskill, N. Y	February 1.
Press, cotton	Samuel Fry	New York	May 7.
Press, cotton, hay, &c	Caleb Martine	Greensburgh, N. Y.	May 30.
Press, cotton, hay, &c	P. G. Gardiner	New York	April 16.
Press, cotton, hay, &c	S. W. Bullock	Catskill, N. Y	March 23.
Press, cotton, hay, &c, toggle joint	Robert Harding	South Berwick, Me	September 3.
Windlasses, or drums, for raising weights	Enoch Robinson	Boston, Mass	February 28.

CLASS XIII.—GRINDING MILLS AND MILL-GEARING, *including grain mills, mechanical movements, and horse powers.*

Inventions or discoveries	Patentees.	Residence.	Date of patent.
Corn and corn cobs, breaking and grinding	James and William Murray	Baltimore, Md	Feb. 12, 1842.
Flour, bolting and dressing	John Hean	Annville, Pa	Feb. 28.
Flouring mills, combining a smut-machine with the scouring stones.	James Durling	Sparta, N. J	April 21.
Gudgeons, &c., self-oiling box for	John Shugert	Elizabeth, Pa	April 1.
Horse power, endless chain	Albert W. Gray	Middletown, Vt	Oct. 26.
Horse power, endless chain	Isaac R. Lawrence	Chatham, N. Y	Oct. 7.
Horse power, endless chain	John Kelly	Lewistown, Pa	March 4.
Mill, bark, grain, &c., grinding	Valentine Birely	Frederick, Md	July 11.
Mill, grinding all kinds of grain	Justin Ware	Farmington, Ohio	July 20.
Millstones	Joseph H. Burrows	Cincinnati, Ohio	April 23.

CLASS XIV.—LUMBER, *including machines and tools for preparing and manufacturing, such as sawing, planing, mortising, shingle and stave, carpenters' and coopers' implements.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Barrels, &c., chamfering, beveling, and howeling.	Samuel Widerman	Elysville, Md.	April 23, 1842.
Barrels and other coopers' ware, machine to be used in combination with improved iron hoops in the manufacture of.	J. H Bruner and R. H. Thompson	Ohio	Nov 12.
Clapboards, laths, staves, &c., cutting	Ebenezer Day	Grand Detour, Ill	June 18.
Fence pickets, &c., turning	Elisha Briggs	Perry, N. Y	July 20.
Mortising and tenoning machine	Warner L. Peters	Frankfort, Pa.	Dec. 12.
Mortising timber	Jerub A. Fay	Keene, N. H.	Jan. 17.
Pegs, shoe, machine for cutting	Stephen K. Baldwin	Gilford, N. H.	July 16.
Sawing boards into oars for rowing boats	John Benson, and Ezekiel Page and Richardson T. Hough.	Boston, Mass. / West Leyden, N. Y.	May 26.
Sawing boards, setting logs for	John Sheffield	Williamson, N. Y.	April 16.
Saw-mill	Lemuel Hedge and Edwin F. Johnson	New York	June 18.
Saw-mill, arranging the saw-gate and fender-posts of.	Samuel Darling, 2d	Groton, Vt.	May 7.
Saw-mill dog, self-setting	George Henning	Ithaca, N. Y.	April 1.
Saw-mill gates, for curvilinear sawing	James Hamilton	New York	July 2.
Saw-mill, portable	Pearson Crosby	Fredonia, N. Y.	Oct. 7.
Saw mill saw, mode of straining	Ransom Cook and Sylvester E. Barnham	Saratoga, N. Y.	Feb. 1.
Saw-mill, sawing felloes and other circular stuff.	Isaac Sheetz	Taneytown, Md.	May 20.
Saw-mill, setting the foot-block of, &c	D. V. Thomas	Richfield, N. Y.	Sept. 17.
Saw-mill, tail-blocks of, for setting the log	Charles D. Wright	Colchester, Conn.	Sept. 30.
Shave for getting out wooden hoops, &c.	Charles Stratton	Brattleboro', Vt.	Aug. 6.
Shingles, cutting	Alexander H. Hart	Chagrin Falls Ohio	Sept. 17.
Shingles, cutting	Avery Kinney	Homer, N. Y.	Feb. 12.
Shingles, cutting	Daniel M Cummings	East Lebanon, N. H.	May 7.
Shingles, cutting	Hiram H. Herrick	Boston, Mass.	March 9.
Shingles, cutting	Sylvester Munson	Dillon, Ill.	Oct. 7.
Shingles, cutting	William Foster	Detroit, Mich.	Nov. 21.
Splints, match, cutting	John Hucks Stevens, assignee of Chauncey E. Warner.	New York	July 2.

Classified list of patents expired—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Staves, dressing, for barrels, casks, &c.	Samuel Learned	Ridgway, N. Y.	May 30, 1842; antedated Nov. 30, 1841.
Tenons, cutting	William H. Ham	Chambersburg, Penn.	Oct. 26.
Veneering curved surfaces	William Iba, assignee of Casper Kittinger.	East Greenville, Ohio	Nov. 21.
Veneers, &c., cutting from the circumference of a log.	John Humphrey	Harrington, N. J.	Oct. 26.
Wood, manufacturing, to be used as a substitute for curled hair in stuffing beds.	William Baker	Utica, N. Y	May 30.

CLASS XV.—STONE AND CLAY MANUFACTURES, *including machines for pottery, glass-making, brick-making, dressing and preparing stone, cements, and other building materials.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Brick-press	A. K. Fahnestock	Harrisburg, Penn.	April 16, 1842.
Brick-press	Alfred Hall	Cleveland, Ohio	Sept. 3.
Brick-press	Antoine Carbonel	Philadelphia, Pa.	May 12
Clay, tempering for bricks	Richard Stillman and Jesse Taylor	Kensington, Pa. / Spring Garden, Pa.	April 21.
Glass, window, flattening and tempering	John J. Adams	Winslow, N. J.	Oct. 17.
Moulds, sugar, making	Antoine Carbonel	Philadelphia, Pa.	April 29.
Stone, dressing	Theodore R. Timby	Auburn, N. Y.	April 23.

CLASS XVI.—LEATHER, *including tanning and dressing, manufacture of boots, shoes, saddlery, harness, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bating hides	William Zollickoffer	Middlebury, Md.	Aug. 18, 1842.
Boot crimps	Bradford Rowe	Maryland, N. Y.	Dec. 17.
Boot legs, turning	Joseph H. Sanford	Hopewell, N. Y	June 22.
Boots and shoes	John Dick	Philadelphia, Penn	Nov. 4; antedated Oct. 15.
Boots and shoes	Joshua S. Bowler	Lynn, Mass.	Nov. 21.
Buttons, forming, worked on the heads, handles, &c., of whips.	Robert S. Brown	Philadelphia, Penn	Feb. 21.
Cutting leather into soles	Elias T. Ingalls	Haverhill, Mass.	April 11.
Harness, bridles	John C. Smith	Brookhaven, N. Y.	March 23.
Harness, bridles	John C. Smith	Brookhaven, N. Y.	Sept. 17.
Saddles	David Irvin	Madison, Wis. Ter	April 11.
Saddles	Foster D. Ward	Bellbrook, Ohio	April 23.
Saddles, spring	Abraham Freed	Marietta, Penn	June 11.
Sewing or stitching all kinds of straight seams	J. James Greenough	Washington city, D. C.	Feb. 21.
Shoes, over	Daniel Hodgman	New York, N. Y	March 23.
Tanning by machinery	David H. Mason	Dahlonega, Ga.	Dec. 5.
Tanning by machinery	Joseph Southwick	Boston, Mass	April 11.
Tanning hides	Abraham Van Pelt	Bedminster, N. J	July 8.
Tanning hides by machinery	Webb Wallace and Joseph Fleming	Lehman Township, Penn. Sandiston Township, N. J.	July 20.

CLASS XVII.—HOUSEHOLD FURNITURE, *machines and implements for domestic purposes, including washing machines, bread and cracker machines, feather-dressing, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bedstead	Charles W. Curtiss	New Haven, Conn.	Dec.
Bedstead fastening	Daniel Ball	Sandy Hill, N. Y.	April 16.

Classified list of patents expired—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bedstead fastening	James Knipe	New York	Jan. 8, 1842.
Bedstead fastening	John Fowler	Pittsburg, Pa	July 11.
Bedstead for the sick	Williams Woolley	New York	April 16.
Bedstead, sofa	Joel Pratt. 3d	Hartford, Conn	April 1.
Bread, raising	Abel Conant	Lowell, Mass	Oct. 12.
Brushes, manufacturing	John J. Adams	Boston, Mass	March 12.
Chair, rocking	Charles L. Bauder	Utica, N. Y	April 6.
Cutting meat and other substances	John Morris	Derby, Conn	Feb. 28.
Cutting vegetables, &c	Henry Hoover, assignee of Martin Stoner.	Waynesboro', Pa	Oct. 22.
Drawers, improvement in	Oliver Jenkins	Boston, Mass	June 22.
Mop-holders, manner of constructing	Samuel S. Whitman	Little Falls, N. Y	Jan. 24.
Safes for preserving meats, &c	David B. Dickinson	Baltimore, Md	July 16.
Sausage machine	John H. Potts	Fayette, Mo	Oct. 12.
Washboard for washing clothes	Marcellus Sands	Franklin, N. Y	Feb. 12; antedated Feb 7.
Washing machine	Frederick Fentriss	Greensboro', N. C	Dec. 12.

CLASS XVIII.—ARTS, POLITE, FINE, AND ORNAMENTAL, *including music, painting, sculpture, engraving, books, paper, printing, binding, jewelry, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Copying machine	Luman Carpenter	Oswego, N. Y	Dec. 31, 1842.
Daguerreotype impressions, mode of fixing	Benjamin R. Stevens and Lemuel Morse.	Lowell, Mass	March 28.
Daguerreotype pictures, coloring	John Plumbe, jr., assignee of Daniel Davis, jr.	Boston, Mass	Oct. 22.
Inkstands, manufacture of	David J. Mandell	Springfield, Mass	Feb. 21.
Pens, metallic	Thomas Woodward	Brooklyn, N. Y	Dec. 1.

Piano-forte, shifting movement for square or horizontal	Thomas Loud	Philadelphia, Pa	April 1, 1842.
Printing-press	Joel G. Northrup	Cortlandtville, N. Y	Sept. 30.
Printing-press, construction of	William W Smith	New York	Feb. 1.
Printing-press, double cylinder	Richard M. Hoe	New York	May 20.
Ruling paper	George L. Wright	Springfield, Mass	May 28.
Sculptors, apparatus for, &c	Henry Dexter	Boston, Mass	Mar. 28.
Seraphines, improvement in	James A. Bazin	Canton, Mass	June 22.
Statues, casting, method of	Lawrence Myers	Philadelphia, Pa	Jan. 8.

CLASS XIX.—FIRE-ARMS AND IMPLEMENTS OF WAR, *and parts thereof, including the manufacture of shot and gunpowder.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Barrels of guns and fire-arms, manner of combining.	Jesse Griswold	Chambers county, Ala	Feb 1, 1842.
Bomb, subterrene or mine	James MacGregor, jr	Wilton, N. Y	Mar. 23.
Cannon locks	Enoch Hidden, inventor in part with and assignee of Samuel Sawyer.	New York	April 29.
Cannon, wrought-iron and steel	Ransom Cook	Saratoga, N. Y	Feb. 1.

CLASS XX.—SURGICAL AND MEDICAL INSTRUMENTS, *including trusses, dental instruments, bathing apparatus, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Baths, medicated vapor	Lucien E. Hicks and Thomas Miner	Middletown, Conn	Sept. 17, 1842.
Resuscitation, apparatus for	Edward Welchman	Cold Spring, N. Y	April 11.
Strabismus, goggles for	Andrew Lake	Flatbush, N. Y	Nov. 4.
Supporters, umbilical, combined with corsets	Maria P. Dibble	New York	May 20.
Teeth, improvement in setting	Matthew S Foster	Trenton, N. J.	Nov. 12.
Truss	Edmund Landis	Lancaster, Pa	Oct. 22.
Truss	George W. Riddell	Knightstown, Ind	July 11.

CLASS XXI.—WEARING APPAREL, *articles for the toilet, &c., including instruments for manufacturing.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Buttons, &c., forming collets, washers, &c.	Moses Ferre	Williamsburg, Massachusetts	July 28, 1842.
Clasps for pantaloon straps, &c	William H. Miller	New York	July 8.
Combs, slitting tortoise shell for making	William Redheffer	Penn Township, Pa	June 18.
Garments, measuring and cutting	Hiram Seger	Macon, Georgia	April 29.
Garments, measuring instruments	Henry C. Brundage	Middletown, N. Y	Feb. 7.
Garments, measuring instruments	Joseph Knowland & Jacob F. Knowland	Brownsboro', Kentucky	July 20.
Garments, measuring instruments	Peter F. L'Veret	Warrenton, Georgia	May 26.
Shears, tailors'	Hermann Wendt	New York, N. Y.	March 23.
Shears, tailors'	James G. Wilson, ass'ee of Thos. Hawkins	New York, N. Y.	March 23.
Shears, tailors'	Thomas James Sloan	New York	Sept. 23.
Umbrellas	Gilbert S. Ward	Newark, New Jersey	April 21.
Wigs	F. Deville	Baltimore, Maryland	Sept. 17.
Wigs	William Dowell	Philadelphia, Pennsylvania	Dec. 12.

CLASS XXII.—MISCELLANEOUS.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Cigars, making	Jonathan Ball	Buffalo, New York	Oct. 12, 1842.
Tents, portable	James Harrison Dakin	New Orleans, Louisiana	May 30.
Traps for rats, &c.	Ebenezer Oliver	Philadelphia, Pennsylvania	Oct. 22.

CLASSIFIED LIST OF PATENTS FOR DESIGNS THAT HAVE EXPIRED DURING THE YEAR 1856.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Carpets	Peter Lawson	Lowell, Mass	April 3, 1842
Carpets	Peter Lawson	Lowell, Mass	April 3.
Carpets	Peter Lawson	Lowell, Mass	April 3.
Furniture ornaments	Isaac F. Baker, assignor to Cornelius & Co.	Philadelphia, Penn	April 10.
Furniture ornaments	Isaac F. Baker, assignor to Cornelius & Co.	Philadelphia, Penn	April 10.
Girandoles	William F. Shaw	Suffolk county, Mass	Dec. 18.
Grate, portable	Apollos Richmond, assignor to A. C. Barstow & Co.	Providence, R. I	Sept. 11.
Stoves	Joseph G. Lamb and Conrad Harris	Cincinnati, Ohio	Dec. 11.
Stoves	Samuel Hill and William B. Cline	Philadelphia, Penn	Dec. 4.
Stoves	D. F. Goodhue and Charles Guild	Cincinnati, Ohio	Dec. 4.
Stoves	Samuel Clark, assignor to Johnson & Cox	Troy, N. Y	Nov. 13.
Stoves	Samuel Clark, assignor to Johnson & Cox	Troy, N. Y	Nov. 13.
Stoves	Samuel H. Ransom	Albany, N. Y	June 26.
Stoves	Samuel H. Ransom	Albany, N. Y	June 26.
Stoves	Charles W. Warnich	Philadelphia, Penn	June 26.
Stoves	Samuel W. Gibbs, assignor to Augustus Quackenboss.	Albany, N. Y	June 26.
Stoves	Henry C. Fay	Troy, N. Y	March 10; antedated Dec. 2, 1848.
Stoves	N. P. Peck	Springfield, Mass	Jan. 23.
Stoves	Samuel W. Gibbs, assignor to Jones & Finney	Albany, N. Y Pattonsburg, Va	March 20.
Stoves	George E. Waring	Stamford, Conn	April 10.
Stoves	Charles J. Woolson	Cleveland, Ohio	April 10.
Stoves	Abram Haney, assignor to J. & A. Morrison.	Troy, N. Y	April 17.
Stoves	Samuel H. Ransom	Albany, N. Y	April 24.
Stoves	Abram Haney, assignor to Morrison & Tibbits	Troy, N. Y	May 8.

Classified list of expired patents for designs—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Stoves	S. W. Gibbs, assignor to North, Harrison & Co	Albany, N. Y. Philadelphia, Penn	July 10, 1849.
Stoves	Samuel Hill and William B. Cline	Philadelphia, Penn	July 17.
Stoves	Hosea H Huntley, assignor to William C. Davis.	Cincinnati, Ohio	Dec. 25.
Stoves	William L. Sanderson, assignor to Dunham, Coller & Sage.	Troy, N. Y.	Dec. 18.
Stoves	Joseph G. Lamb and Conrad Harris	Cincinnati, Ohio	Aug. 7.
Stoves	William L. Sanderson, assignor to Pease, Keeney & Gage.	Troy, N. Y.	Aug. 21.
Stoves	James Wager	Troy, N. Y	Sept. 25.
Stoves	James Wager	Troy, N. Y.	Sept. 25.
Stoves	Calvin Fulton, assignor to John M. French.	Rochester, N. Y.	Sept. 25.
Stoves	Geo. W. Chambers, assignor to A. Cox & Co.	Troy, N. Y.	Oct. 9.
Stoves	Geo. W. Chambers, assignor to A. Cox & Co	Troy, N. Y.	Oct. 9.
Stoves	S. H. Burton	Cincinnati, Ohio	Oct. 9.
Stoves	Sherman S. Jewett and F. H. Root	Buffalo, N. Y.	Oct. 9.
Stoves	William Savery	New York, N. Y	Oct. 9.
Stoves	Samuel W. Gibbs, assignor to J. Cross & Son	Albany, N. Y Morrisville, N. Y	Oct. 9.
Stoves	Edward B. Finch	Peekskill, N. Y	Oct. 16.
Stoves	James Wager	Troy, N. Y.	Oct. 23.
Stoves	Hosea H. Huntley	Cincinnati, Ohio	Oct. 23.
Stoves	John F. Rathbone	Albany, N. Y	Oct. 23.
Stoves	John F. Rathbone	Albany, N. Y	Oct. 23.
Stoves	John F. Rathbone	Albany, N. Y	Oct. 23.
Stoves	Abram Haney, assignor to Morrison & Tibbits.	Troy, N. Y.	Nov. 6.
Stoves	Samuel Clark, assignor to Johnson & Cox.	Troy, N. Y.	Nov. 13.
Stove, air-tight	Moses Pond	Boston, Mass.	Oct. 23.
Stoves, cooking	A. C. Barstow	Providence, R. I.	July 10.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
16261	Abbott, Harry	Mill, cider	Dec. 23, 1856	XIII.
	Abbott, J. G., and A. Lawrence. (See Smith, G., H. Brown, and J A. Read, assignors.)			
	Adams, A. W. (See Davis, Ari, Asahel Davis, and C. Cunningham, assignors.)			
15502	Adams, Calvin	Corn-sheller	Aug. 12, 1856	I.
	Adams, Calvin. (See Sherwood, John P., assignor.)			
15681	Adams, Henry	Saddles, ladies' riding	Sept. 9, 1856	XVI.
15548	Adams, Henry W.	Glass fountain lamps, mould for pressing	Aug. 19, 1856	XV.
	Adams, Isaac	Printing-press, power, additional improvement in the	Aug. 19, 1856	Extension.
	Adams, Isaac	Printing-press, power, printing machine called the	Aug. 26, 1856	Extension.
15797	Adams, Joseph	Fire-arms	Sept. 30, 1856	XIX.
16260	Adams, Jonathan	Ploughs	Dec. 23, 1856	I.
14943	Adams, Lucius B.	Saw-mills, head blocks of, method of operating	May 25, 1856	XIV.
14218	Adamson, William	Paper, sand, machinery for cutting	Feb. 12, 1856	III.
15638	Adkins, Homer	Harvesters	Sept. 2, 1856	I.
16310	Adler, Elkan	Bed-bottoms, spring	Dec. 23, 1856	XVII.
15314	Aiken, J. B. and W., assignors to H. and J. B. Aiken.	Knitting machines	July 8, 1856	III.
14848	Akins, William H.	Locks.	May 13, 1856	II.
	Albaugh & Wilt. (See Wilt & Albaugh)			
16107	Albright, Joseph	Collars, horse, machines for stuffing	Nov. 25, 1856	XVI.
14340	Albro, W. W.	Cooking with quick-lime, apparatus for	Mar. 4, 1856	V.
14341	Alden, Timothy	Streets, sweeping, machine for	Mar. 4, 1856	IX.
14487	Alexander Lambert	Vessels, propelling	Mar. 25, 1856	VII.
14757	Alexander, Thomas J	Sawing-machine	April 29, 1856	XIV.
15503	Allard, Daniel N.	Washing machine	Aug. 12, 1856	XVII.
16222	Allcutt, Mark	Cant-hook, adjustable, for moving logs, &c.	Dec. 16, 1856	XII.
14644	Allen, Andrew	Looms, power	April 15, 1856	III.
14645	Allen, Edwin	Clocks, calendar	April 15, 1856	VIII.
15637	Allen, Edwin	Clocks, calendar	Sept. 2, 1856	VIII.
15454	Allen, Ethan	Projectiles, hollow, moulds for	July 29, 1856	XIX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
16137	Allen, Frederic	Mop-heads	Dec. 2, 1856	XVII.
14991	Allen, John F., assignor to N. L. Cole	Valves, slide, for steam-engines, operating	May 27, 1856	VI.
807	Allen, John F., assignor to Stratton & Massey	Stoves, cooking	June 17, 1856	Design.
15109	Allen, Lucien H., assignor to L H. Allen and E. M. Ivens.	Wheels, car, casting	June 10, 1856	X.
	Allen, Z. (See Dawley, B. G., assignor.)			
14219	Allender, John	Scissors	Feb. 12, 1856	XVII.
14993	Alley, William	Uterine supporters	June 3, 1856	XX.
	Allyn & Hager. (See Hager, Abraham, and Youngs Allyn.)			
15504	Alston, James T	Supporters, invalid	Aug. 12, 1856	XX.
	Alston, W., and S J. Lewis. (See Lewis & Alston.)			
14342	Amazeen, Christopher	Marble in taper form, machines for sawing	Mar. 4, 1856	XV.
16000	Amazeen, Christopher	Ship's windlass, the pawl cases of a, machinery for operating.	Nov. 4, 1856	VII.
14548	Ames, Nathan	Stamp, self-inking	April 1, 1856	XVIII.
16167	Ames, Nathan, assignor to Boston Hand Stamp Co	Stamp, hand	Dec. 2, 1856	XVIII.
816	Ames, Winslow	Stove, box, plate	July 15, 1856	Design.
	American Railroad Chair Manufacturing Company. (See Carson, Samuel.)			
	American Railway Manufacturing Company. (See Carson, Samuel.)			
	Amidon, C. H. (See Hitchcock, A. C. and C. H. Amidon.)			
15873	Anderson, B. G	Bridge, canal	Oct. 14, 1856	IX.
14435	Anderson, Homer	Steel, welding	Mar. 18, 1856	II.
16108	Anderson, J., J. McLaren, and J. Bryant	Lathe for cutting fluted mouldings	Nov. 25, 1856	XIV.
16001	Anderson, Robert, and Aaron H. Vancleve	Metals, cutting	Nov. 4, 1856	II
	Anderson, Shroder & Russell. (See Shroder, Richard, assignor.)			
16223	Andrews, Emanuel	Saws, grinding, machine for	Dec. 16, 1856	XIV.
14994	Andrews, Solomon	Lamps, gas-burning	June 3, 1856	V.

15270	Andrews, Solomon	Locks, pad	July 8, 1856	II.
16224	Andrews, Solomon	Locks, pad, case for	Dec. 16, 1856	II.
353	Apperly, William	Cars, &c., railroad, ticket register for	Feb. 19, 1856	Reissue.
14588	Appleby, Stephen N	Drying wet grain, &c., machine for	April 8, 1856	V.
14758	Applegate, Enoch	Chain-cable hooks	April 29, 1856	VII.
15597	Ariail, Charles J. P	Water, method of applying one stream of, to assist in raising another.	Aug. 26, 1856	XI.
15271	Armitage, Robert G	Fires, method of extinguishing	July 8, 1856	V.
16042	Armstrong, Francis	Brakes, bumper, for railroad cars	Nov. 11, 1856	X.
16262	Armstrong, John	Boilers, steam	Dec 23, 1856	VI.
14981	Arnett, William D	Cars, railroad, replaceable axle box for	May 27, 1856	X.
14589	Arnold, Aaron	Propeller-shafts in keels, enclosing	April 8, 1856	VII.
15163	Arnold, Asa	Saw for sawing-machines, self-setting or self-raking	June 24, 1856	XIV.
362	Arnold, John, deceased, legal representatives of, assignors to Union Manufacturing Company.	Web for cloth of wool, hair, or other substance, machine for forming the, without spinning or weaving.	Mar. 18, 1856	Reissue.
15464	Arnold, Samuel	Trap, fly	Aug. 5, 1856	XXII.
15722	Arnold, S	Trap, fly	Sept. 23, 1856	XXII.
403	Arthur, Robert	Cans, preserve, self-sealing	Oct. 14, 1856	Reissue.
370	Arthur, Robert	Preserve-cans, self-sealing	June 10, 1856	Reissue.
15214	Ashe, William A	Tire on wheels, mode of securing	July 1, 1856	X.
14995	Ashenfelder, Josiah	Marble sawing machines	June 3, 1856	XV.
14436	Ashley, Lewis C	Planes, bench	Mar. 18, 1856	XIV.
	Ashman, George, and Chas. Phelps. (See Hayes, Augustus A., assignor.)			
14897	Aspinwall, Jas. N., assignor to himself and Henry E. Staff	Rolling file-blanks	May 13, 1856	II.
15114	Atkins, George	Planters, corn, hand	June 17, 1856	I.
15680	Atwood, A	Mill, metallic, hemispherical grinding, dress of	Sept. 9, 1856	XIII.
15871	Atwood, Chas, deceased, Lydia Atwood, and C. O. Crosby, administrators of.	Pins in paper, sticking	Oct. 14, 1856	II.
15874	Atwood, Chas, deceased, Lydia Atwood, and C. O. Crosby, administrators of.	Pins, papering	Oct. 14, 1856	II.
16199	Atwood, Charles, deceased, Lydia Atwood & C. O. Crosby, administrators of.	Pins, machines for sticking	Dec. 9, 1856	II.
15506	Atwood, L. & W	Oil from bitumens, preparing oil from	Aug. 12, 1856	IV.
15505	Atwood, L. & W	Oil from cannel coal, production of	Aug. 12, 1856	IV.
15456	Atterbury, Thomas B., and William Warwick, assignors to Warwick, Atterbury & Co.	Locks, face-plate for	July 29, 1856	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15273	Barber, H. B	Wells, water from, method of drawing	July 8, 1856	XI.
14335	Barden, John S, assignor to himself and Aaron W. Rockwood.	Hydraulic metre	Feb. 26, 1856	XI.
14761	Barlow, Milton	Harvesters, cradling	April 29, 1856	I.
15315	Barnes, Charles E., assignor to C. E. Barnes and M. W. Oliver.	Cannon, automatic	July 8, 1856	XIX.
15508	Barnes, E. R., and Jas. B. Blakslee	Hat-bodies, felting	Aug. 12, 1856	III.
15876	Barnes, J W	Manure distributor	Oct. 14, 1856	I.
15917	Barnes, John	Threshing, grain, and separating machines	Oct. 21, 1856	I.
14046	Barnes, Lebbeus	Harvesters	Jan. 8, 1856	I.
15878	Barnes, W. T and J	Pump	Oct. 14, 1856	XI.
14385	Barnes, V	Brake, R. R. car	Mar. 11, 1856	X.
14647	Barnhart, Andrew J	Lasts, securing and releasing blocks of	April 15, 1856	XIV.
15407	Barnitz, C. D	Tables, portable, folding	July 29, 1856	XVII.
14898	Barrett, Jonathan F., assignor to Abram B. and Jonathan R. Barrett.	Mowing machines	May 13, 1856	I.
15279	Barringer, Henry	Tire, upsetting, machine for	July 8, 1856	X.
	Barstow, Ephraim R, and B. Wardwell. (See Wardwell & Barstow.)			
16043	Bartholomew, Frederick H	Faucet, anti-frost	Nov. 11, 1856	XI.
14708	Bartle, Warren S	Fertilizers, sowing machine for	April 22, 1856	I.
15320	Bartle, Warren S., and Ebenezer Vaughan	Straw-cutter	July 15, 1856	I.
	Bartlett, Hayward & Co. (See Smith, Brown & Read, assignors.)			
14273	Bartlett, William D	Cisterns, construction of	Mar. 25, 1856	IX.
15321	Barton, Alvin	Ploughs	July 15, 1856	I.
14583	Barton, Alvin, assignor to himself, A. R. Morgan, and J. M. Parsons.	Door-springs	April 1, 1856	II.
14593	Barton, Jason	Bells, pressure	April 8, 1856	XVII.
15591	Barton, Wm. M., assignor to Wm. M. and Robert M. Barton.	Stone, drilling and dressing, machines for	Aug. 19, 1856	XV.

16000	Barton, Wm. M., assignor to Wm. M. and Robert M. Barton.	Drills, rock	Aug. 19, 1856	XV.
16877	Bartram, Walker B.	Pins in paper, sticking	Oct. 14, 1856	II.
	Bascom, A., and C. B. Wheeler. (See Wheeler & Bascom.)			
14793	Bastion, Joseph	Wheels, turbine, guides or chutes for, construction of.	May 6, 1856	XI.
15215	Batchelder, Hazin J	Forceps, dental	July 1, 1856	XX.
15965	Batchelder, Hazin J	Tooth extractor	Oct. 28, 1856	XX.
15055	Batchelder, William W	Pegging machines, hand	June 10, 1856	XVI.
15942	Bate, John J.	Lard rendering kettles	Oct. 21, 1856	IV.
	Bate, Robert. (See Dickinson & Bate.)			
15755	Bates, Malender	Planters, corn	Sept. 23, 1856	I.
15409	Bateon, John W., assignor to himself and Martin H. Bateon.	Harvesters, corn and cane, cutting apparatus for	July 29, 1856	I.
15408	Bateon, John W., assignor to himself and Martin H Bateon.	Harvesters, corn and cane, raking apparatus for	July 29, 1856	I.
14997	Battey, Jesse	Windmills, method of regulating	June 3, 1856	XI.
14794	Baughman, J. T.	Wagon tongue	May 6, 1856	X.
15943	Baum, Charles	Table and bedsteads combined	Oct. 21, 1856	XVII.
	Baxendale, James. (See Standing, John, assignor.)			
14221	Baxter, William	Wrench	Feb. 12, 1856	II.
15056	Baxter, William	Engine, hydro-steam	June 10, 1856	VI.
15274	Bazin, James A.	Pumps, rotary	July 8, 1856	XI.
16323	Bazin, James A. (assignor to A. B. Ely)	Counting	Dec 23, 1856	VIII.
15164	Beach, A. Ely	Printing instruments for the blind	June 24, 1856	XVIII.
16138	Beach, Moses S.	Printing presses, feeding paper to	Dec. 2, 1856	XVIII.
16311	Beach, Moses S.	Printing presses, feeding paper to, machine for	Dec. 23, 1856	XVIII.
412	Beach, William	Currycombs	Dec. 9, 1856	Reissue.
16226	Beach, William	Pans, bake	Dec. '6, 1856	XVII.
15167	Beals, Fordyce	Firearms	June 24, 1856	XIX.
14081	Beattie, John	Propellers, stern, means for supporting the propeller shaft, and receiving the rudder of.	Jan. 15, 1856	VI. XXII.
	Beaugrand, C. E. A., and Theodore Gomme. (See Gomme & Beaugrand.)			
15032	Beaumont, Frederick B E	Firearms	June 3, 1856	XIX.
14531	Beaumont, Samuel	Trap, rat, self-setting	Mar. 25, 1856	XXII.
	Beck, Jacob M. (See Low, Samuel W., assignor.)			
14998	Becker, Joseph	Pianoforte action	June 3, 1856	XVIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15324	Bee, Benjamin F	Boilers, steam, means for controlling feed-water apparatus of.	July 15, 1856	VI.
16171	Beebe, Alfred S	Valve gear for steam-engines	Dec. 9, 1856	VI.
14343	Beebe, James W	Hats, manufacturing	Mar. 4, 1856	III.
15610	Beecher, D. J	Planters, cotton-seed	Sept. 2, 1856	I.
15509	Beers, Smith	Odometers	Aug. 12, 1856	VIII.
783	Beesley, Jacob, assignor to Cresson, Stuart, & Peterson.	Furnace, summer	April 15, 1856	Design.
841	Beesley, J., and E. J. Delany, (assignors to Cresson, Stuart & Peterson.)	Stoves, parlor	Oct. 7, 1856	Design.
14903	Beetle, James	Boat-framer	May 20, 1856	VII.
14945	Beetle, James	Car-window	May 27, 1856	X.
15410	Behrens, Henry J	Stone, machines for sawing in taper form	July 29, 1856	XV.
15116	Belchambers, Alfred	Thrashing and winnowing grain	June 17, 1856	I.
15468	Belknap, Moody	Spike machines	Aug. 5, 1856	II.
14301	Bell, William	Cellars, coal in, machine for depositing	Feb. 26, 1856	IX.
	Bellamy, W., and C. Dickinson. (See Dickinson & Bellamy.)			
	Bellows, E. H, and G. J. Washburn. (See Washburn & Bellows)			
15918	Belt, Charles R	Planters, cotton-seed	Oct. 21, 1856	I.
15552	Belter, John H	Bedsteads	Aug. 19, 1856	XVII.
15322	Bemiss, Moses	Planters, corn	July 15, 1856	I.
	Bender, Charles, et al. (See Huygens, G. W. O., assignor)			
15097	Benedict, Reuben W	Carriages	June 10, 1856	X.
14595	Benham, Nathan	Door-knobs, fastening	April 8, 1856	II.
	Bennett, D K, and Alonzo Webster (See Webster and Bennett.)			
16139	Bennett, Edwin	Vessels, earthen, for hermetical sealing purposes	Dec. 2, 1856	XV.
14530	Bennett, James H	Butter-worker	Mar. 25, 1856	I.

	Bennett, P., J. Kendrick, and L. A. Cook. (See Glines, H. M., assignor.)			
15799	Bennett, William	Gridiron	Sept. 30, 1856	XVII.
14217	Bergmann, Charles H	Writing desks	Feb. 5, 1856	XVII.
14181	Bernheisel, Solomon	Dryers, corn	Feb. 5, 1856	V.
14274	Berry, Edward F	Sowing seed broadcast, machines for	Feb. 19, 1856	I.
16205	Berry, Frederick	Leather stamping, machines for, combined with a rolling machine.	Dec. 9, 1856	XVI.
15365	Berry, Lewis M	Planing machine, cutter heads for	July 22, 1856	XIV.
	Berry, Thomas I. (See Goodyear and Berry, assignors.)			
15159	Bertram, William, assignor to John W. Cochran	Iron plates, welding	June 17, 1856	II.
16082	Bessemer, Henry	Iron and steel, manufacture of	Nov. 11, 1856	II.
16083	Bessemer, Henry	Iron ore, smelting	Nov. 18, 1856	II.
15034	Bever, John T	Washing machines	June 3, 1856	XVII.
14792	Beverly, C F	Shingle machine, rotary	May 6, 1856	XIV.
15366	Bevin, Abner G	Sleigh-bells, mode of attaching to straps	July 22, 1856	XXII.
14639	Bevin, Julius, assignor to himself and Samuel N. Stillman.	Axles, boxes for	April 8, 1856	X.
	Bickel, William, et al. (See Harman, Isaac, assignor.)			
16111	Bickell, Charles	Process of treating feldspar as a manure	Nov. 25, 1856	IV.
	Bicknell, I. W. (See Stover, H. D., and I. W. Bicknell.)			
	Bicknell, I. W., and H. D. Stover. (See Stover and Bicknell.)			
15724	Bidwell, Salmon	Lamps, for burning fluids	Sept. 9, 1856	V.
14590	Bigelow, E B	Looms	April 8, 1856	III.
14222	Bigelow, Erastus B	Looms, power	Feb. 12, 1856	III.
15837	Bigelow, H., and M. Camp	Ships' and boats' tackle, ringbolt for	Oct. 7, 1856	VII.
	Bigelow, Lawson R. (See Cass and Bigelow.)			
12275	Billings, Horace	Cements, roofing	July 8, 1856	IV.
15919	Bills, Edmund C., jr	Ploughs, coulters for, apparatus for cleaning	Oct. 21, 1856	I.
	Bingham, S. H. F (See Simpson A., assignor.)			
14648	Binny, William W	Stoves, coal	April 15, 1856	V.
14150	Bisbee, Albert	Valve, throttle, of steam engines, means for operating the.	Jan. 29, 1856	VI.
14946	Bisbee, A, and T. D	Photographic pictures on glass	May 27, 1856	XVIII.
15033	Bishop, Solon	Washing machines	June 3, 1856	XVII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14796	Bishup, G. W	Smoothing irons, self-heating	May 6, 1856	XVII.
15682	Bishup, G. W	Ordnance, breech-loading	Sept. 9, 1856	XIX.
	Bissell, M. (See Mills, S. S., and M. Bissell.)			
14707	Bitler, George I	Seeding machines	April 22, 1856	I.
15920	Black, William	Corn-shellers	Oct. 21, 1856	I.
14438	Blackwell, Samuel	Saddle-tree, dumb jockey, the cross or horns, &c., being made of gutta percha.	March 18, 1856	XVI.
14386	Blair, Lafayette	Blast, hot, apparatus	March 11, 1856	V.
14437	Blake, James B	Gas, roasting and broiling by, apparatus for	March 18, 1856	V.
	Blake, L W. and G. W	Water-wheels	April 22, 1856	Extension.
820	Blake, P and E. W. and J. A	Drawer-pulls	Aug. 5, 1856	Design.
16173	Blake, William S	Boilers, steam, floats for	Dec. 9, 1856	VI.
15961	Blakeslee, E C, E. Platt, and E Jordan	Kettle, brass, machine for making	Oct. 28, 1856	II.
14302	Blakie, Andrew, and Walter Clark	Pitman	Feb. 26, 1856	XIV.
	Blakeslee, James B, and E. R. Barnes. (See Barnes & Blakeslee.)			
15098	Blanchard, George	Bottles, apparatus for cutting the strings that secure corks in.	June 10, 1856	XXII.
15325	Blanchard, George	Graters, nutmeg	July 15, 1856	XVII.
15944	Blanchard, Thomas	Wood bending, method of	Oct. 21, 1856	XIV
15367	Bliss, Jeremy W	Door-knobs	July 22, 1856	II.
14488	Blitzkowski, G. A., and F W. Hoffman	Guns, needle	March 25, 1856	XIX.
14710	Blitzkowski, Gustav, administrator of Frederick William Hoffman	Firearms, revolving	April 22, 1856	XIX.
14275	Blodgett, Sherburne C	Forks	Feb. 19, 1856	XVII.
15469	Blodgett, Sherburne C	Sewing machine	Aug. 5, 1856	III.
14489	Blunt S. F, deceased, Charles H. Key, adm'or of	Boats, detaching from their tackle	March 25, 1856	VII.
399	Boardman, Luther	Buff for polishing spoons, and other articles	Oct. 7, 1856	Reissue.
14801	Bocklen, Reinhold	Planters, corn	May 6, 1856	I.
	Boget t, Horatio. (See Bradford, Hezekiah, ass'r.)			
16312	Bolton, James	Horse-fastening	Dec. 23, 1856	XXII.
15470	Bond, Joseph, jr	Sewing machines	Aug. 5, 1856	III.

16169	Bonney, H M.	Sail hanks	Dec. 9, 1856	VII.
14344	Bonwill, William M.	Harvesters, corn	March 4, 1856	I.
15117	Bonzano, M. F.	Counting coin, machines for	June 17, 1856	VIII.
14802	Book, S & W. H.	Felloes, machine for sawing	May 6, 1856	X.
	Bookout, Edward, and W. Filmer. (See Filmer & Bookout.)			
14902	Bookhout, E., and C. H. Hewlett	Closets, water	May 20, 1856	IX.
15326	Boone, Thomas G.	Rope machines	July 15, 1856	III.
15278	Booth, William M., and James H. Mills	Dies for stamping or pressing sheet metal	July 8, 1856	II.
15553	Borden, Gail, jr.	Milk, concentration of	Aug 19, 1856	IV.
15754	Bos, Isaac.	Sails, top, reefing	Sept. 23, 1856	VII.
	Boston Faucet Company. (See Goodridge, Joseph, assignor.)			
	Boston Faucet Company. (See Goodridge, Joseph, assignor.)			
798	Bosworth, Albert, assignor to Albert Bosworth and Timothy H. Loomis.	Piano-forte legs	May 27, 1856	Design.
	Bosworth, Zephaniah.	Stoves, heating, construction of	March 31, 1856	Extension.
375	Bottum, James M.	Watches, securing pinions, &c., of, in lathes	July 8, 1856	Reissue.
15875	Bourbin, James.	Excavators	Oct. 14, 1856	I.
15216	Bowen, David	Sawing felloes, machine for	July 1, 1856	XIV.
15166	Bowen, R. W.	Hemp-breaker	June 24, 1856	III.
15402	Boyes, Burritt C., assignor to B. C. Boyes and H. Dercum	Sewing machines, folding guides for	July 22, 1856	III.
	Boynton, Cox, & Richardson. (See Hathaway, David, assignor.)			
15279	Boynton, Edward S.	Hitching horses, clothes lines, &c., apparatus for	July 8, 1856	XXII.
15471	Boynton, John	Brick press	Aug. 5, 1856	XV.
15838	Boynton, J. F.	Soda fountains	Oct. 7, 1856	IV.
15411	Boynton, John F.	Salt evaporation, solar apparatus for	July 29, 1856	IV.
15165	Boynton, Leander W.	Smoothing irons	June 24, 1856	XVII.
	Boynton, Richardson & Cox. (See Vedder, N. S., assignor.)			
	Boynton, Richardson & Cox. (See Vedder & Ripley, assignors.)			
	Boynton, Richardson & Cox. (See Hathaway, David, assignor.)			
15550	Brabyn, John L.	Furniture polish	Aug. 19, 1856	XVII.
15798	Brad, Henry.	Brick machines	Sept. 30, 1856	XV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15057	Bradford, Charles K	Harness trace couplings	June 10, 1856	XVI.
15544	Bradford, Hezekiah, assignor to Horatio Bogert	Ore washer	Aug. 12, 1856	II.
16044	Bradley, George	Drag, steam	Nov. 11, 1856	X.
15960	Bradley, R. P	Valve, puppet	Oct. 28, 1856	XI.
15543	Bradley, Robert P., assignor to Joel Wisner	Clothes, wringing	Aug. 12, 1856	XVII.
14049	Brady, Reuben	Metal, sheet, bending, machine for	Jan. 8, 1856	II.
15276	Braman, E., & R. Peterson	Brick machines	July 8, 1856	XV.
14687	Bramble, W. H	Weighing machines, grain	April 15, 1856	XII.
392	Brand, C C	Bomb-lance for killing whales	Aug. 26, 1856	Reissue.
15118	Brand, Nathan	Forks, hay machine for bending	June 17, 1856	II.
15966	Branch, Isaac B	Teeth, applying freezing mixtures to the	Oct. 28, 1856	XX.
14439	Branwhite, Charles	Cans, preserve, hermetically sealing	Mar. 18, 1856	XVII.
	Bray, Mellen. (See Wells, William, & Mellen Bray.)			
	Brayshaw, Wm. (See Melville, John G., & Wm. Brayshaw.)			
14797	Breaer, Abel	Lubricator	May 6, 1856	IV.
14901	Brecht, Gustavus V	Meat, cutting, machines for	May 20, 1856	XVII.
15590	Breckenridge, A. C., assignor to Julius Pratt & Co.	Bleaching ivory, frames for	Aug. 19, 1856	IV.
15217	Breed, D. Franklin	Brake for wagons	July 1, 1856	X.
837	Bridge, Hudson E	Stoves, cooking	Oct 7, 1856	Design.
845	Bridge, Hudson E	Stoves	Oct. 14, 1856	Design.
15921	Briggs, J. C	Musical instruments, reed for	Oct. 21, 1856	XVIII.
15356	Briggs, John C	Pendulum for time-keepers, conical, mode of regulating.	July 15, 1856	VIII.
	Brinkerhoff, Alexander W. (See Perdew & Brinkerhoff.)			
14440	Broiles, John	Trusses, hernial	Mar. 18, 1856	XX.
15473	Brook, John M	Boats, means for attaching and detaching to and from their tackle	Aug. 5, 1856	VII.

14688	Brooks, Lebbius	Marble obelisks, sawing, adjusting the angle in machines for.	April 15, 1856	XV.
15119	Brooks, Lebbius	Saw-set	June 17, 1856	XIV.
14551	Brooks, Wm. F	Metal tubes, seamless, making	April 1, 1856	II.
	Brosius, Jacob, and Jacob Geiss. (See Geiss & Brosius)			
350	Broughton, Albert	Polishing stone, metals, &c	Feb. 12, 1856	Reissue.
15059	Broughton, John	Pumps, rotary	June 10, 1856	XI.
15368	Broughton, John	Saws, circular, method of driving	July 22, 1856	XIV.
15555	Broughton, John	Door spring	Aug. 19, 1856	II.
15728	Broughton, John	Shingle machines, feed motion for	Sept. 16, 1856	XIV.
397	Broughton John	Pumps, rotary	Sept. 30, 1856	Reissue.
15716	Brower, Robert F., assignor to S. A. & J. L. Brower.	Gases, waste, steam, &c., method of drawing from manufacturing inclosures.	Sept. 9, 1856	XI.
14490	Brown, Adolph & Felix	Sugar, loaf, machines for cutting	Mar. 25, 1856	XXII.
14787	Brown, Albert H., assignor to Tingley & Veile	Lathe	April 29, 1856	XIV.
14047	Brown, Charles E	Doors, double, mode of hanging	Jan. 8, 1856	IX.
14125	Brown, Charles H, and Charles Burleigh, assignors to the Putnam Machine Company.	Vaives, steam, as cut-offs, means for regulating and working.	Jan. 15, 1856	VI.
349	Brown, Charles W	Tonguing and grooving machine	Feb. 5, 1856	Reissue.
16225	Brown, Clark H	Hoops, wooden, method of planing and tapering	Dec. 16, 1856	XIV.
14791	Brown, Clayton, sr	Lubricating grist-mill spindles, apparatus for	May 6, 1856	IV.
	Brown, Edward, and James R. Case. (See Liblong, John, assignor.)			
14223	Brown, F. & A	Boring and turning wood, machine for	Feb. 12, 1856	XIV.
	Brown, George, and Wm. Wright. (See Wright & Brown.)			
15472	Brown, Henry and William	Boats, ice breaking	Aug. 5, 1856	VII.
14276	Brown, Henry A, and James Wiley	Pens, fountain	Feb 19, 1856	XVIII.
	Brown, Henry, and Garretson Smith. (See Smith, G., and H. Brown)			
	Brown, H, and G. Smith. (See Smith & Brown).			
	Brown, H, G. Smith, and Jos. A. Read. (See Smith, Brown, & Read.)			
	Brown, H, G Smith, and J. A. Read. (See Smith, Brown, & Read)			
	Brown, H., G. Smith, and J. A. Read. (See Smith, Brown, & Read.)			

Alphabetical List of Patentees—Continued.

No	Name of patentee.	Invention or discovery.	Date.	Class.
	Brown, H., G. Smith, and J. A. Read, assignors to Hayward, Bartlett, & Co. (See Smith, Brown, & Read, assignors)			
	Brown, H, Smith, and Read, assignors to Cox, Hagar, & Cox. (See Smith, Brown, & Read, assignors)			
15277	Brown, Hiram C	Vice	July 8, 1856	II.
15684	Brown, J F	Washing machine	Sept. 9, 1856	XVII.
14126	Brown, John L., assignor to himself and Charles Learned	Lath machine	Jan. 15, 1856	XIV.
15475	Brown, J. S., assignor to Joseph Kent	Bee hives	July 29, 1856	I.
14552	Brown, John W	Bolting railway bars	April 1, 1856	II.
14083	Brown, Joseph S	Car, railroad, extension	Jan. 15, 1856	X.
14008	Brown, Philo	Furnace for soldering	Jan. 1, 1856	V.
	Brown, Read, & Smith. (See Smith, G., H Brown, and J. A. Read, assignors)			
	Brown, Read, & Smith (See Smith, G., H. Brown, and J A Read, assignors.)			
	Brown, Read, & Smith (See Smith, G, H Brown, and J A Read, assignors)			
	Brown, Read, & Smith, assignors to Leibrant, McDowell, & Co. (See Smith, Brown, and Read)			
16172	Brown, Robert J	Fences, portable, yielding joint for	Dec. 9, 1856	IX.
14 48	Brown, Samuel W	Ships and other vessels, constructing the bottoms of	Jan. 1, 1856	IX.
15058	Brown, Samuel W	Steam-pressure gauges	June 10, 1856	VI.
16170	Brown, Timo	Composition, alloy	Dec. 9, 1856	IV.
364	Brown, Thomas	Chain cables, arrangement of means for working and stoppering.	Mar. 25, 1856	Reissue.
	Brown, Vernon, and John Taggart. (See Taggart			

14800	Browne, John D.	Apples, paring machines for	May 6, 1856	XVII.
15683	Browne, John D.	Apple parers	Sept. 9, 1856	XVII.
15796	Brownell, W.	Chimney cap	Sept. 16, 1856	V.
15554	Brownfield, Thomas	Wheels for carriages	Aug. 19, 1856	X.
851	Bruce, George	Printing types	Dec. 2, 1856	Design.
14795	Bruff, Charles S	Shutters, double panel	May 6, 1856	IX.
15557	Bruff, Charles S.	Sash supporter	Aug. 19, 1856	IX.
14303	Brunner, Henry I	Paper, wall, machine for edging	Feb. 26, 1856	XVIII.
16264	Bryan, William W.	Snath of a grain-cradle, mode of securing braces in the.	Dec. 23, 1856	I.
15556	Bryant, Joel	Gauges, carpenters'	Aug 19, 1856	XIV.
	Bryant, McLaren, & Anderson. (See Anderson, McLaren, & Bryant.)			
16204	Bryson, Robert	Husking corn, machines for	Dec. 9, 1856	I.
14709	Buchanan, Alexander	Valve, balanced slide for steam engines	April 22, 1856	VI.
15551	Buchholtz, Lewis	Compound, plastic	Aug. 19, 1856	IV.
15833	Buck, Joab, assignor to Joab Buck, H. S. Buck, I. W. Kimball, and D. H. Thompson.	Cars, railroad, disconnecting and applying brakes	Sept. 30, 1856	X.
14947	Buck, Martin, Jas. H. Buck, & Francis A. Cushman	Brick machines	May 27, 1856	XV.
16174	Buck, M. and James H., and F. A. Cushman	Brick, hollow, or building blocks, machines for pressing.	Dec. 9, 1856	XV.
14597	Buckel, George, and E. Dorsch	Guns, shot	April 8, 1856	XIX.
15369	Buckel, George, and Edward Dorsch	Cartridges, fixed	July 22, 1856	XIX.
14706	Buel, Julio T.	Fishing tackle	April 22, 1856	XXII.
14277	Bull, Wallis and George	Marble, machines for sawing	Feb. 19, 1856	XV.
16079	Bullock, Alvin	Harvesters	Nov. 11, 1856	I.
15727	Bullock, W. M.	Felloes, dressing, machine for	Sept. 16, 1856	XIV.
	Bullock, S. W.	Presses for pressing hay, cotton, &c, method of constructing.	Mar. 21, 1856	Extension.
14304	Bundy, Benj B.	Wagons	Feb. 26, 1856	X.
15060	Burdge, Jonathan	Mill, flour, cutting	June 10, 1856	XIII.
15316	Burditt, Riley, assignor to Jacob Estey and Hartsel P. Green.	Melodeons, &c., base damper for	July 8, 1856	XVIII.
14999	Burdon, William	Valves, slide, relieving from the pressure of steam	June 3, 1856	VI.
16085	Burgess, Phineas	Glass, polishing, machines for	Nov. 18, 1856	XV.
14751	Burk, T. D., assignor to James Garrett	Wire fences, contraction and expansion in, device to allow for.	April 22, 1856	II.
14750	Burk, Thomas D., assignor to J. C. Miller and C. A. Fowler.	Horse powers, link gearing for	April 22, 1856	XIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14345	Burke, John M.	Axle arms, skein for	Mar. 4, 1856	X.
	Burleigh, Charles. (See Brown, Charles H., & c.)			
14272	Burleigh, Charles assignor to Putnam Machine Company	Planing machines, feed rollers of, gearing for	Feb. 12, 1856	XIV.
15961	Burling, George W	Metal, sheet, machine for bending	Oct. 28, 1856	II.
142.8	Burnham, Abner	Stoves, cooking	Feb. 19, 1856	V.
	Burnam & Pierce (See Pierce and Burnam, assignors.)			
765	Burnam, Sanford, assignor to Cox, Warren, Morrison & Co.	Stove plates	Feb. 12, 1856	Design.
16265	Burnett, W. B	Fence, field, portable	Dec. 23, 1856	IX.
	Burnett, W H,, and I. Perkins. (See Perkins & Burnett)			
15412	Burnham, Wm. H., and B. Hibbard.	Churns	July 29, 1856	I.
14491	Burnside, A. E	Fire-arms, breech loading	Mar. 25, 1856	XIX.
	Burr, St. John, Wright, and Riblet. (See Wells, Henry A., assignor)			
	Burr, St. John, Wright, and Riblet. (See Wells, Henry A., assignor.)			
14441	Burrall, Thomas D	Harvesters, grain and grass	Mar. 18, 1856	I.
16258	Burrall, Thomas D	Reaping and mowing machines	Dec. 16, 1856	I.
16084	Burrows, George S	Vessels, attaching centre boards to	Nov. 18, 1856	VII.
14596	Burt, George E	Corn, broom, machine for combing seed off	April 8, 1856	I.
16002	Burt, William A	Sextant, equatorial, instrument called an	Nov 4, 1856	VIII.
14189	Bush, Chas H	Trap, stench, bell	Feb. 5, 1856	IX.
	Bushnell, William. (See Van Anden, William, assignor.)			
14795	Buss, Charles	Vice	May 6, 1856	II.
16227	Butler, John	Valve motions for steam-engines	Dec. 16, 1856	VI.
15962	Butler, W. H	Locks	Oct. 28, 1856	II.
14357	Butler, William	Gates, lock, valves for	Mar. 11, 1856	IX.
14442	Butler, William	Castings, chilled, making	Mar. 18, 1856	II.

	Butler, W. H., and R. G. Holmes. (See Holmes & Butler.)			
14850	Butterfield, Jesse S., and Simeon Marshall	Cartridge opener	May 13, 1856	XIX.
14346	Cadenhead, Jas J	Ploughs	Mar. 4, 1856	I.
14762	Cady, Asa W	Excavating and moving earth, machine for	April 29, 1856	IX.
	Cahill, John H. (See Read, Jas. A., assignor.)			
	Caldwell, J. C., and Alex'r Hall. (See Alex'r Hall, assignor.)			
15327	Cambridge, P. C., jr	Forms, ornamental, method of turning	July 15, 1856	XIV.
	Camp, M., and H. Bigelow. (See Bigelow & Camp.)			
16175	Campbell, James W	Elliptographs	Dec. 9, 1856	VIII.
14649	Canfield, Henry E	Valves, cut-off, of steam-engines, arrangement of means for operating.	April 15, 1856	VI.
14151	Capewell, Joseph T	Shot pouches	Jan. 29, 1856	XIX.
15061	Carhart, Jeremiah	Melodeons, reed boards for, machine for manufacturing.	June 10, 1856	XVIII.
372	Carhart, Jeremiah	Musical instruments, bellows for	June 24, 1856	Reissue.
15218	Carhart, Jeremiah	Melodeons	July 1, 1856	XVIII.
15062	Carlisle, John M	Saw mills, head blocks of, method of operating	June 10, 1856	XIV.
14152	Carlton, Thos. I., and Stephen Post	Fences, field	Jan. 29, 1856	IX.
15641	Carmichael, P. D. M	Engines, steam, rotary	Sept. 2, 1856	VI.
14598	Carpenter, Calvin, jr	Magneto-electric machines	April 8, 1856	VIII.
15691	Carpenter, Chas. P	Rakes, hay	Aug. 26, 1856	I.
16313	Carpenter, Joseph	Harvesting-machines	Dec. 23, 1856	I.
14852	Carpenter, Nelson B	Horse shoe	May 13, 1856	
15173	Carpenter, Stephen D	Pump, rotary	June 24, 1856	XI.
15686	Carpenter, W. B	Lamps, fluid, extinguisher for	Sept 9, 1856	V.
15994	Carpenter, Wm. B	Billiard table cushions	Oct. 28, 1856	XXII.
	Carr, Adam. (See McNab, Jas., and Adam Carr.)			
16045	Carr, Thomas	Ships' steering apparatus	Nov. 11, 1856	VII.
15474	Carr, William S	Water closets	Aug. 5, 1856	IX.
16220	Carson, Samuel, assignor to American Railway Manufacturing Company.	Locomotive method of charging the receiver of a, with compressed air, from fixed stations.	Dec. 16, 1856	VI.
16003	Carter Albert	Odometers	Nov. 4, 1856	VIII.
385	Carter, Charles P	Apple parers	Aug. 12, 1856	Reissue.
15603	Carter, Charles P	Apple parers	Aug. 26, 1856	XVIII.
16104	Carter, C. P., assignor to Leonard Harrington	Apples, paring, machines for	Nov. 18, 1856	XVII.
15328	Carter, Ira	Marble sawing machine	July 15, 1856	XV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Carter, W. B., and H. L. Mooney. (See Mooney & Carter.)			
14388	Carter, Wm. L	Ore-washer	Mar. 11, 1856	II.
	Carlton, John. (See Stuber, John, assignor.)			
14183	Caryl, A. H	Harvesters, raking attachment to	Feb. 5, 1856	I
	Case, Jas. R., and Edward Brown. (See Liblong, John, assignor.)			
16317	Case, John, and Isaac Soules	Furnaces, smoke consuming	Dec. 23, 1856	V.
15741	Casey, Abraham	Saw-set	Sept. 16, 1856	XIV.
15000	Casey, John	Window frames	June 3, 1856	IX.
14282	Cass, Marcus M., and Lawson R. Bigelow	Grapple for raising stone	Feb 19, 1856	XII.
15687	Cawood, Joseph D	Bars, railroad, repairing	Sept. 9, 1856	II.
15170	Chaffee, Horace B	Vice	June 24, 1856	II.
14803	Chamberlin, Melvin C	Collars, horse, mould press for	May 6, 1856	XVI.
16123	Chamberlin, M. C., and W. Filkins	Boot-legs, machine for turning	Nov. 25, 1856	XVI.
15842	Chambers, Cyrus, jr	Paper, folding, machine for	Oct. 7, 1856	XVIII.
15599	Chambers, William C., and Thos. S. Hargraves	Wind-wheel	Aug. 26, 1856	XI.
16135	Chandler, Thomas A., assignor to H. Herrick and T. A Chandler.	Planters, hand corn	Nov. 25, 1856	I.
15219	Chapin, Henry A	Gas-fi tings, reaming and tapping, machine for	July 1, 1856	V.
419	Chapin, Henry A	Gas-fittings, machine for reaming and tapping	Dec 23, 1856	Reissue.
14283	Chapin, Seth P	Sewing guides	Feb 19, 1856	III.
14904	Chapman, Henry E	Pill machines	May 20, 1856	XXII.
14184	Chapman, Levi	Photographic plate vice	Feb. 5, 1856	XVIII.
14069	Chapman, Nathan	Press, power, chain for	Jan. 1, 1856	XII.
338	Chapman, Nathan	Press, cotton	Jan. 8, 1856	Reissue.
14084	Chapman, Samuel I	Printing presses, machine for feeding sheets of paper to.	Jan. 15, 1856	XVIII.
15645	Chase, Hezekiah	Chimneys, apparatus for arresting carbon in	Sept. 2, 1856	V.
14050	Chase, Ira, jr	Scuttle, coal, covers	Jan. 8, 1856	IX.
	Chase, North, and North. (See Vedder and San-			

	Chase, North, and North. (See Gibbs, S. W., assignor.)			
	Chase, North, and North. (See Vedder and Sanderson, assignors.)			
15870	Chase, Pliny E.	Boilers, steam, arrangement of means for regulating the draught in.	Oct. 14, 1856	VI.
15916	Chatfield, T. W.	Chimney cowl	Oct. 14, 1856	V.
15063	Chattaway, James	Percussion caps, water proof	June 10, 1856	XIX.
15370	Chattaway, James	Percussion tape priming	July 22, 1856	XIX.
14085	Cheever, Joseph	Genital organs, apparatus for curing varicocele, sterility, impotency, and other diseases of the.	Jan. 15, 1856	XX.
15642	Cheever, Joseph	Belting or banding, India rubber, manufacture of	Mar. 11, 1856	XII.
15642	Cherry, Cummings	Oil obtained from mineral coal, purifying apparatus for.	Sept. 2, 1856	IV.
15643	Cherry, Cummings	Oil, crude, distilling from mineral coal, apparatus for.	Sept. 2, 1856	IV.
15644	Cherry, Cummings	Oil, drying, preparation of from oils extracted from bituminous minerals.	Sept. 2, 1856	IV.
15970	Chesley, Plumer	Wheel, current	Oct. 28, 1856	XI.
	Chester, Charles T. (See Robinson, Charles, and C. T. Chester.)			
15840	Childs, George W.	Vegetable cutters	Oct. 7, 1856	XVII.
15968	Childs, William C.	Candle mould machine	Oct. 28, 1856	IV.
14443	Chope, Thomas	Carriage coupling	Mar. 18, 1856	X.
	Church, Harvey. (See Dutcher, William R.)			
14390	Clapp, Clinton W.	Bench clamp	Mar. 11, 1856	XIV.
15220	Clapp, E. S	Saws, wood, method of framing and straining	July 1, 1856	XIV.
	Clark, Edward, and J. M. Singer. (See Greenough, J. J., assignor.)			
14444	Clark, Hiram	Threshing-machines	Mar. 18, 1856	I.
14086	Clark, H. M.	Bolts, heading, machines for	Jan. 15, 1856	II.
14224	Clark, John, and G. W. N. Yost	Ploughs	Feb. 12, 1856	I.
	Clark, Walter. (See Blakie J. Clark.)			
	Clark, W. A., George Trott, and R. H. Coles. (See Trott, Coles, and Clark.)			
14948	Clark William	Piano legs, attachments for	May 27, 1856	XVIII.
15685	Clark, William A.	Engines, steam	Sept. 9, 1856	VI.
14043	Clarke, G. A., assignor to Wm. Clarke	Harvester, raking apparatus	Jan. 1, 1856	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14051	Clarke, George H	Bee-hives	Jan. 8, 1856	I.
14804	Clarke, William	Paper from straw, process for making	May 6, 1856	III.
14391	Clement, Edwin B., and Silas G. Willie	Washing-machines	Mar. 11, 1856	XVII.
14949	Clement, Nathan S	Fire-arms, breech-loading	May 27, 1856	XIX.
14950	Clemson, William	Saws, circular, grinding	May 27, 1856	XIV.
15413	Cleveland, E. C	Metal planers	July 29, 1856	II.
15172	Cleveland, Samuel E. and H. B	Lamps, locomotive	June 24, 1855	V.
14347	Clifford, Ransom	Shingle-machine	Mar. 4, 1856	XIV.
16112	Clinton, Thomas G	Cooking apparatus, alcohol	Nov. 25, 1856	V.
14853	Clough, John, and Daniel M. Cummings	Splint, surgical	May 13, 1856	XX.
15222	Clough, Wm. T	Acid, sulphuric, concentrating apparatus for	July 1, 1856	IV.
15122	Clow, Charles N	Engines, marine and other, differential governors for	June 17, 1856	VI.
15221	Clow, Charles N	Pumps, rotary	July 1, 1856	XI.
15280	Clow, Charles N	Pumps, rotary	July 8, 1856	XI.
14492	Coates, Abraham	Lamps, carcel, regulating the flow of oil to the wick in	Mar. 25, 1856	V.
15720	Coates, John G	Forceps, dentists	Sept. 16, 1856	XX.
14855	Coates, William B	Corn, green, from the cobs, machine for cutting	May 13, 1856	XVII.
15475	Coates, William B	Envelope	Aug. 5, 1856	XVIII.
16177	Coates, William B	Corn, standing, machine for cutting the stalks of	Dec. 9, 1856	I.
	Cochran, John W. (See Bertram, William, assignor.)			
14010	Cochrane, James	Valves, slide, method of operating and lubricating	Jan. 1, 1856	VI.
	Cody, J. A., *et al.* (See Marsh, David.)			
15646	Coffin, N. B., jr	Filter	Sept. 2, 1856	IX.
15282	Coffin, John E	Books, rounding and backing, machine for	July 8, 1856	XVIII.
14305	Coffin, Nathan T	Saws, mill	Feb. 26, 1856	XIV.
767	Coggeshall, Wm. T	Stoves, parlor	Feb. 19, 1856	Design.
14650	Cohen, Jacob	Chimneys, grates and dampers for arrangement of	April 15, 1856	V.
14906	Colburn, Richard, and L. W. Hanson	Valves, supplemental, arrangement of, for high-pressure engines.	May 20, 1856	VI.
15415	Cole, Algernon L	Weaving seamless bags, harness for	July 29, 1856	III.

16046	Cole, John, and A. Little O. Wall	Draining machines	Nov. 11, 1856	IX.
	Cole, Mason D., and Harley Stone. (See Stone & Cole)			
	Cole, N. L (See Allen, John F., assignor.)			
14011	Cole, Richard H	Nut box	Jan. 1, 1856	II.
15001	Cole, Richard H	Nut machine	June 3, 1856	II.
15003	Cole, Richard H	Nuts, making	June 3, 1856	II.
15004	Cole, R H. & J. C.	Nuts, metallic, machine for polishing	June 3, 1856	II.
14711	Coleman, Andrew	Telegraph, receiving magnets for	April 22, 1856	VIII.
15729	Coleman, E. & P	Bolt, heading	Sept. 16, 1856	II.
15868	Coleman, W. P	Mill-stone dress	Oct. 7, 1856	XIII.
	Coles, R. H. George Trott, and William A. Clark. (See Trott, Coles & Clark.)			
14012	Collen, John B	Brick presses	Jan. 1, 1856	XV.
14088	Collier, E. H	Spikes, heading	Jan. 15, 1856	II.
16257	Collier, Ralph	Egg beaters, rotary	Dec. 23, 1856	XVII.
15064	Collins, Hiram	Shutter operator	June 10, 1856	II.
15281	Colman, J. M., and T. Turton	Engines, steam, rotary	July 8, 1856	VI.
14905	Colt, Samuel	Fire arms	May 20, 1856	XIX.
	Colton, Howell, and La Baw. (See La Baw, George W., assignor.)			
14445	Comfort, Samuel, jr	Mowing machines	Mar. 18, 1856	I.
14553	Comfort, Samuel, jr	Harvesters, apparatus for removing grain from	April 1, 1856	I.
16307	Comfort, Samuel, jr., assignor to E. S. Renwick	Harvesters, automatic rakes for	Dec. 23, 1856	I.
14153	Comstock, George R	Furnace grates, locomotive	Jan. 29, 1856	V.
14554	Conant, Hezekiah	Fire arms, breech loading	April 1, 1856	XIX.
15168	Cone, Julius	Lock, alarm	June 24, 1856	II.
16229	Coney, Jabez	Pumps	Dec. 16, 1856	XI.
14052	Conkling, Edgar	Bricks, building, form of	Jan. 8, 1856	XV.
	Conner, I., and S. C. Mendenhall. (See Mendenhall & Conner.)			
10053	Contaret, D	Disinfecting fecal matter	Jan. 8, 1856	IV.
15717	Cook, James C., assignor to Hotchkiss & Merriam Manufacturing Company.	Looms, Jacquard	Sept. 9, 1856	III.
14185	Cook, John	Shingles, cast-iron, lugs for	Feb. 5, 1856	IX.
	Cook, L. A., Bennet and Kendrick. (See Glines, H. M., assignor.)			
16268	Cook, Theodore	Stoves and furnaces	Dec 23, 1856	V.
16047	Cooley, Almon	Door knob spindles, fastening	Nov. 11, 1856	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15416	Creighton, James R	Shutter operator	July 29, 1856	II.
14533	Crenshaw, Micajah	Plough, cultivating	March 25, 1856	I.
	Cresson, Stuart & Peterson. (See Beasley & Delany, assignors.)			
15915	Critchlow, Alfred P., assignor to A. P. Critchlow & Co.	Picture cases, hinge for	Oct. 14, 1856	XVIII.
15171	Crossdale, William	Spreaders, lime and guano	June 24, 1856	I.
14014	Crocker, John G	Cars, railroad, safety guard for	Jan. 1, 1856	X.
15121	Crockett, Charles F	Leather, sheets of, making from curriers' shavings and "buffings."	June 17, 1856	XVI.
15600	Crofoot, Legrand	Rafters, laying-out, instrument for	Aug. 26, 1856	XIV.
16048	Crofoot, Legrand	Door fastener	Nov. 11, 1856	II.
14652	Cromwell, Levi	Omnibus registers	April 15, 1856	X.
14600	Crooke, John J	Sash fastener	April 8, 1856	II.
15967	Crooker, Matthew A	Paddle-wheels, buckets of, arrangement of	Oct. 26, 1856	VII.
	Crosby, C. O., administ'r. (See Atwood, Charles.)			
16266	Crosby, C. O	Paper, folding, machinery for	Dec. 23, 1856	XVIII.
14306	Cross, Richard	Knife and pencil case combined	Feb. 26, 1856	XVIII.
14087	Crout, Hezekiah	Lanterns, glasses of, removable flanch-bars for securing the	Jan. 15, 1856	X.
15757	Crozier, H. A	Stave jointer	Sept. 23, 1856	XIV.
14712	Culver, John	Hydrants, waste device for	April 22, 1856	XI.
14092	Cummings, Dewitt C	Locks, canal, valve-gates, for	Jan. 15, 1856	IX.
16113	Cumming, David	Axles, boxes, and journals, &c	Nov. 25, 1856	X.
	Cummings & Clough. (See Clough & Cummings.)			
14091	Cummings, C. A., and C. Douglass	Gas-burners	Jan. 15, 1856	V.
15801	Cummings, William D	Smoothing irons, self-heating	Sept. 30, 1856	XVII.
	Cunningham, Charles. (See Davis, Arl, Asahel Davis, and Cunningham, assignors.)			
14094	Cunningham, H. D. P	Sails, reefing	Jan. 15, 1856	VII.
14093	Curley, E. A	Tables, extension	Jan. 15, 1856	XVII.

	Currie & Horton. (See Horton, James, and John Currie.)			
14752	Curtis, Kelsey, assignor to Winsted Auger Co	Augers	April 22, 1856	XIV.
15066	Cushing, Daniel	Painted cloth, machine for rubbing and polishing	June 10, 1856	XVIII.
15065	Cushing, Daniel	Paint, machine for coating cloth with	June 10, 1856	XVIII.
	Cushman, Francis A., *et al.* (See Buck, Buck & Cushman.)			
15945	Dailey, Albert A	Washing machines	Oct. 21, 1856	XVII.
	Dailey, O. A. (See Scheitlin, J., assignor.)			
15476	Dana, Charles H	Sash supporter	Aug. 5, 1856	IX.
15477	Danforth, William H	Printing press	Aug. 5, 1856	XVIII.
14227	Dare, Clement	Mills, &c., feed gates for, method of regulating	Feb. 12, 1856	XIII.
15371	Darker, William, jr	Engines, steam, vibratory	July 22, 1856	VI.
15224	Darling, Cook	Apples, cutting and coring, machines for	July 1, 1856	XVII.
16049	Darlington, J. H. and W. Piper	Meter, diaphragm, fluid	Nov. 11, 1856	XI.
14392	Davenport, Charles	Heating buildings by steam, apparatus for	Mar. 11, 1856	V.
16269	Davenport, Henry	India rubber thread, machines for cutting	Dec. 23, 1856	IX.
14393	David, Henry R	Sewing machines	Mar. 11, 1856	III.
14054	Davidson, Thomas, jr	Paving, street, machines	Jan. 8, 1856	IX.
14129	Davis, Ari, Asahel Davis, and Charles Cunningham, assignors to A. W. Adams, J. B. Richardson, George W. Pettes, and S. T. Sanborn.	Vapor, hydro-carbon, apparatus	Jan. 15, 1856	IV.
14307	Davis, Ari and Asahel	Dovetailing machine	Feb. 26, 1856	XIV.
14494	Davis, Charles W	Dryers, fruit or grain	Mar. 25, 1856	V.
15036	Davis, D L	Railroad chairs, elastic bearings for	June 3, 1856	X.
16005	Davis, Edwin A	Railroad station indicator	Nov. 4, 1856	X.
	Davis, George N., *et al.* (See Kenney, George, assignor.)			
	Davis, George N., *et al.* (See Kenney, George, assignor.)			
14349	Davis, Isaac	Hinges for shutters	Mar. 4, 1856	II.
14806	Davis, Samuel	Lamps, lard	May 6, 1856	V.
15175	Davis, Wilbur M	Water wheel	June 24, 1856	XI.
14394	Davy, Edward, Nancy Davy, administratrix of	Hemp and flax, preparing, machinery for	Mar. 11, 1856	III.
856	Davy, John T	Stoves, cooking	Dec. 23, 1856	Design.
857	Davy, John T	Stoves, cooking, parlor	Dec. 23, 1856	Design.
855	Davy, John T	Grates, parlor	Dec. 23, 1856	Design.
16306	Dawley, B. G., assignor to Z. Allen	Looms	Dec. 23, 1856	III.
15330	Dawson, Joel	Sawing-mills, self-setting tail blocks for	July 15, 1856	XIV

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14763	Dawson, William	Cigar machines	April 29, 1856	XXII.
15067	Day, Austin G	India rubber, cleaning	June 10, 1856	IV.
15117	Day, Austin G	Pen, fountain	July 29, 1856	XVIII.
14856	Day, Benjamin I	Bridle bits	May 13, 1856	XVI.
	Day, Charles. (See Grimes, Andrew.)			
14807	Day, Charles, and Alanson D. Lord	Wood, splitting, machine for	May 6, 1856	XIV.
14095	Day, Joseph C	Fire-arms	Jan. 15, 1856	XIX.
	Day, T., and A. Bisbee. (See Bisbee & Day.)			
14764	Dearborn, John M	Scaffolding	April 29, 1856	IX.
14154	Degraw, H. N	Bars, railroad, machine for replacing	Jan. 29, 1856	X.
14446	Degraw, H. N	Bottles, corking, machine for	Mar. 18, 1856	XXII.
782	Delany, Edward J., assignor to Cresson, Stuart & Peterson.	Oven, gas	April 15, 1856	Design.
	Delany, E. J., and J. Beesley, assignor to Cresson, Stuart, & Peterson. (See Beesley & Delany, assignors.)			
14155	Delassize, L. T	Brick machine	Jan. 29, 1856	XV.
14637	Demarest, John, assignor to J. L. Mott's Iron Works.	Moulding pipe, core bar for	April 8, 1856	II.
	Deming, A. L., and O. L. Cowles. (See Cowles and Deming.)			
15284	Dempsey, R. M	Smut-machines	July 8, 1856	XIII.
	Denig, John. (See Rode, Rufus, assignor.)			
14228	Denison, C. H	Planer, rotary, for felloes	Feb. 12, 1856	XIV.
15478	Denison, S. R. C	Carpet-fastener	Aug. 5, 1856	XVII.
15035	Denney, Samuel L	Planters, hand corn	June 3, 1856	I.
15604	Denniston, John T	Engines, steam, condensers for	Aug. 26, 1856	VI.
394	Denniston, John T	Saddles, harness	Sept. 9, 1856	Re-issue.
15285	Derby, J. K	Stave-joints	July 8, 1856	XIV.
16050	Derby, John P	Sleeve-fastener	Nov. 11, 1856	XXI.
16140	Derby, John P	Wristband-fastener	Dec. 2, 1856	XXI.

15060	Derby, J. P., assignor to Salisbury Manufact'ng Co.	Dyeing	Oct. 21, 1856	IV.
	Dercum, H., and B. C. Boyes. (See Boyes, B. C., assignor.)			
	Deutschmann & Werner. (See Werner, C. F., and C. Deutschmann.)			
	De Vaughan & Wood. (See Wood, William P., assignor.)			
	De Vaughan, Samuel, and Wm. P. Wood. (See Wood & De Vaughan.)			
	De Vaughan, Samuel, & Wm. P. Wood. (See Wood, Wm. P., assignor.)			
14713	Devlan, P. S	Brick machines	April 22, 1856	XV.
14857	Dexter, Elisha	Measure, self-counting	May 13, 1856	VIII.
15605	De Zeng, Henry L	Fog-bell, self-adjusting	Aug. 26, 1856	VII.
14186	Dickerson, Edward N., and Elisha K. Root	Pumps	Feb. 5, 1856	XI.
15286	Dickinson, C., and W. Bellamy	Metal, cast, securing pearl ornaments in handles of.	July 8, 1856	II.
	Dickinson, Charles W. (See Lyon & Dickinson.)			
15068	Dickinson, J. C., and Robert Bate	Pocket-book	June 10, 1856	XVIII.
15689	Dilkes, C., and G. S	Sawing-mills, method of feeding	Sept. 9, 1856	XIV.
801	Diller, Isaac	Stoves	June 17, 1856	Design.
14858	Dimock, Lucius, and Ira	Thread, trebling single, machinery for	May 13, 1856	III.
14555	Dimpfel, F. P	Boilers, steam	April 1, 1856	VI.
14176	Dod, Daniel, assignor to himself and H F. Read	Soldering iron	Jan. 29, 1856	II.
14447	Dodge, Calvin	Fire-places	Mar. 18, 1856	V.
15054	Dodge, Daniel	Nail-machines	June 3, 1856	II.
15357	Dodge, Josiah	Cannon, mode of charging	July 15, 1856	XIX.
15069	Dole, Henry C	Metal, sheet, shears for	June 10, 1856	II.
15718	Dole, L. A., assignor to Dole, Silver, and Felch	Saw-gummer	Sept. 9, 1856	XIV.
	Dorsch, E. (See Buckel & Dorsch.)			
	Dorsch, Edward, and George Buckel. (See Buckel & Dorsch.)			
14350	Dorsey, Owen	Harvester rakes	March 4, 1856	I.
15174	Dorsey, Owen	Reapers	June 24, 1856	I.
15971	Doubler, J. W. H	Stoves, cooking	Oct. 28, 1856	V.
15690	Dougherty, Geo. W., and Thos. G. McLaughlin	Lubricating throstle spindles	Sept. 9, 1856	IV.
	Douglass, C. (See Cummings, C. A., and C. Douglass.)			
	Dousman, Heath, and Reily. (See Reily, John, assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date	Class.
15418	Downer, Samuel, and Joshua Merrill	Oils, lubricating, pyrogenous	July 29, 1856	IV.
14689	Downing, I. Francis	Gates, farm, method of hanging and elevating or depressing.	April 15, 1856	IX.
15372	Drake, John S	Hands and arms, artificial	July 22, 1856	XX.
14859	Draper, S. W. and R. M	Mill-stones, machines for dressing	May 13, 1856	XIII.
15647	Drigge, John F	Street sprinkler	Sept. 2, 1856	IX.
15543	Dripps, Wm	Harvesters	Oct. 7, 1856	I.
15510	Drummond, John W	Steering apparatus	Aug. 12, 1856	VII.
	Drummond, Malenzo J. (See W. and W. H. Lewis, assignors.)			
	Dulley, J. J. (See Pierce and Dulley, assignors.)			
	Dulley, J. J., and Samuel Pierce, assignors. (See Pierce and Dulley, assignors to Fuller, Warren, and Morrison.)			
	Dulley, J. J., and Samuel Pierce, assignors. (See Pierce and Dulley, assignors to Fuller, Warren, and Morrison.)			
848	Dulley, James J., assignor to Fuller, Warren, and Morrison.	Stoves	Nov. 4, 1856	Design.
14351	Dunbar, Elon	Gates, farm, self-acting	Mar. 4, 1856	IX.
15176	Dunham, Isaac A	Shoemakers' edge planes	June 24, 1856	XVI.
14938	Dutcher, Wm. R., assignor by intermediate assignment to Harvey Church.	Rope and cordage, machinery for making	May 20, 1856	III.
15914	Dutton, Thomas, assignor to I. R. Elvans	Carriage springs, brace for	Oct. 14, 1856	X.
14395	Dwyer, Robert D	Carriages, apparatus for preventing horses in, from falling.	Mar. 11, 1856	X.
	Dyott, Michael B	Lamps	May 12, 1856	Disclaimer.
796	Dyott, Michael B	Match safes, paper weights, and pin-cushions, combined.	May 27, 1856	Design.
	Dyott, Michael B	Lamps for essential oils, &c	May 28, 1856	Extension.
14908	Eagleton, J. Joseph	Furnace, annealing	May 20, 1856	V.
373	Eagleton, J. Joseph	Furnace, annealing	June 24, 1856	Reissue.

14465	Echols, Josephus	Stone-drilling machines	Mar.	20, 1856	V.
15331	Echols, Samuel M	Fire-backs for fire-places	July	15, 1856	V.
	Eddy G. W. (See Vedder & Sanderson, assignors)				
	Edgarton, H., and G. W. Walton. (See Walton & Edgarton)				
14308	Edson, Othniel W	Collars, shirt, machinery for making	Feb.	26, 1856	XXI.
15287	Edwards, Charles R	Shutter operator	July	8, 1856	II.
15178	Ehrsam, George C	Trees, felling, method of, by saws	June	24, 1856	XIV.
14396	Eickemeyer, R	Rulers, parallel	Mar.	11, 1856	VIII.
15559	Eickemeyer, R	Sawing-mills, method of operating velocity of feed for.	Aug.	19, 1856	XIV.
15844	Eliason, Elias A	Tan vats, construction of hide frames in	Oct.	7, 1856	XVI.
14556	Elliott, Augustus	Harvesters, grain	April	1, 1856	I.
15006	Ellis, Rufus	Knitting-machines, needle for	June	3, 1856	III.
15845	Ellis, Wm. M	Buoys	Oct.	7, 1856	VII.
15479	Ellithorp, Solomon B	Pavement metal	Aug.	5, 1856	IX.
	Ells, Edgar S., and Sidney W. Parker. (See Parker & Ells.)				
16178	Ellsworth, Erastus W	Siphon rams, arrangement of valves, &c., in	Dec.	9, 1856	XI.
16206	Ellsworth, Erastus W	Boilers, steam, feed water pumps for	Dec.	9, 1556	VI.
	Elvans, J. R. (See Dutton, Thomas, assignor.)				
15332	Elwell, Henry H	Door knobs	July	15, 1856	II.
	Ely, A. B. (See Whipple, M. D., assignor.)				
	Emerson, Charles. (See Marquis & Emerson.)				
15123	Emerson, James	Ships' capstans and windlasses	June	17, 1856	VII.
	Emery, Charles W. (See Neal, James, and Chas. W. Emery.				
	Emlen, Samuel. (See Morgan, Chas., assignor.)				
369	Emmons, Phineas, assignor to Albert Spencer and Alve E Laing.	Hat bodies, planking-machines for	May	27, 1856	Reissue.
788	Engel, Isaac	Piano-forte legs	May	13, 1856	Design.
15458	Engelbrecht, Theodore F., assignor to T. F. Engelbrecht and Thomas C. Nye.	Chimney dampers	July	29, 1856	V.
15758	English, B. E	Window-blinds, the slats of, mode of adjusting	Sept.	23, 1856	IX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15179	English, Francis M	Vehicles, mode of detaching horses from	June 24, 1856	X.
14557	English, Henry	Hydrant	April 1, 1856	XI.
14229	Enos, Levi S	Oil cans	Feb. 12, 1856	V.
14714	Erb, John B	Locks, door	April 22, 1856	II.
15124	Erb, M., and F. C. Goffin	Locks	June 17, 1856	II.
14055	Erdle, Jacob	Saws, filing	Jan. 8, 1856	XIV.
14690	Ericsson, John	Engines, air	April 15, 1856	XI.
14188	Ernst, John G	Saw-set	Feb. 5, 1856	XIV.
15177	Espenchade, F	Fluids, cooling and drawing from casks	June 24, 1856	XI.
15802	Espy, Mills B	Bottles, hermetically sealing	Sept. 30, 1856	XXII.
	Espy, M. B., and A. Walsh. (See Walsh, Henry, assignor.)			
15880	Estep, D. P	Axe-poles, making	Oct. 14, 1856	II.
141	Esterly, George	Harvesters, grass	April 22, 1856	Add'l Imp't.
14715	Esterly, George	Cultivators	April 22, 1856	I.
155	Esterly, George	Harvesting machines	Nov. 25, 1856	Add'l Imp't.
	Estey, Jacob, and Hartsel P. Green. (See Burditt, Riley, assignor.			
15002	Estlack, Thomas	Buildings, device in the walls of, for preventing damage in case of fires.	June 3, 1856	IX.
16115	Evans, Evan L	Combs, curry	Nov. 25, 1856	II.
15037	Evans, James W	Amalgamator	June 3, 1856	II.
16007	Evans, Ormrod C	Spading machine	Nov. 4, 1856	I.
14640	Evans, R. M., assignor to R. M. Evans and Chas. S. Gale.	Brake, railroad car	April 8, 1856	X.
769	Evans, Theodore	Forks and spoons, handles of	Mar. 4, 1856	Design.
16270	Evens, Platt, jr	Printing press, hand	Dec. 23, 1856	XVIII.
14352	Everett, W. E	Lubricator	Mar. 4, 1856	IV.
14230	Everett, Wm. E., and M. Minthorne Thompson	Boilers, incrustations of, devices for removing	Feb. 12, 1856	VI.
16270	Evins, John B	Shingle machine	April 29, 1856	XIV.
15511	Faas, Anthony	Accordeons	Aug. 12, 1856	XVIII.

16061	Fahrney, Samuel, assignor to Abraham Huffer and Benjamin Fahrney.	Vice	June	3, 1856	II.
15545	Fairbanks, Thaddeus, assignor to John C. Schooley.	Refrigerators	Aug.	12, 1856	XVII.
14056	Falkenaw, Morris, Morris Pollak, and Solomon Wiener.	Watch key	Jan.	8, 1856	XVIII.
14157	Farmer, Moses G.	Telegraphic repeaters	Jan.	29, 1856	VIII.
15373	Farmer, Moses G.	Telegraphs, electric, self-acting	July	22, 1856	VIII.
	Farmers' and Mechanics' Manufacturing Company. (See Ingersoll, Simon, assignor.)				
	Farrand, W. P., and J. S. Sanson. (See Sanson & Farrand.)				
15226	Fay, Samuel B.	Labels, metallic hook for	July	1, 1856	XXII.
15125	Fayette, J. B., and D. Wheeler	Tackle-blocks, strapping	June	17, 1856	VII.
15733	Feix, John	Metals, granulating	Sept.	16, 1856	II.
	Felch, Isaac N., *et al.* (See Roberts, Milton, assignor.)				
	Felch, Isaac N., *et al.* (See Roberts, Milton, assignor.)				
	Felch, Dole, & Silver. (See Dole, E. A., assignor.)				
14601	Fellows, Robert B	Furnace, tempering	April	8, 1856	V.
15560	Felters, George, and J. S. McClintock	Coupling pipes	Aug.	19, 1856	II.
347	Felton, Amory	Mills, grinding	Jan.	29, 1856	Reissue.
135	Felton, Amory	Mills, grinding	Feb.	26, 1856	Add'l imp't.
14015	Fenn, Benjamin	Wind-mill	Jan.	1, 1856	XI.
15881	Fenn, Dennis, E.	Gates, farm, method of opening and closing	Oct.	14, 1856	IX.
15405	Fernald, James	Chairs	July	22, 1856	XVII.
	Ferry, Aretas, and D. W. Green. (See D. W. Green, assignor.)				
15846	Ferry, L. M., assignor to James T. Ames	Hose coupling	Oct.	7, 1856	XI.
15804	Fidler, John	Alloys, journal box	Sept.	30, 1856	IV.
14808	Field, A. G.	Wind mill, self-regulating	May	6, 1856	XI.
15847	Field, Benjamin F	Mortar, mixing, machines for	Oct.	7, 1856	XV.
	Field, S. (See Kinsman & Field.)				
14309	Fiester, John U.	Churns	Feb.	26, 1856	I.
15126	Fiester, John U.	Carriage springs	June	17, 1856	X.
	Filkins, W. (See Chamberlin & Filkins.)				
	Filley, G. F. (See N. S. Vedder, assignor.)				
16141	Filmer, William, and Edward Bookout	Electrotype plates, mode of backing	Dec.	2, 1856	XVIII.
16051	Finkin, Gustavus	Sugar draining apparatus	Nov.	11, 1856	IV.

Alphabetical List of Patentees—Continued.

No.	Name of Patentee.	Invention or discovery.	Date.	Class.
14191	Firth, Thomas	Boilers, steam, feed water, apparatus to	Feb. 5, 1856	VI.
15419	Fisher, Lewis S	Marble, sawing, machines for	July 29, 1856	XV.
14354	Fisher, Luther B	Shears, sheep	Mar. 4, 1856	IX.
14189	Fisher, Major H., assignor to Joseph A. Hyde	Files, cutting	Feb. 5, 1856	II.
	Fitch, Enoch P., and I. Scott. (See Kern, James M., assignor.)			
	Fitch, E. P., and Isaac Scott. (See Kern, James, M., assignor.)			
14716	Fitts, Abraham	Peat, digging, machine for	April 22, 1856	IX.
14355	Fitzgerald, Daniel	Houses, portable	Mar. 4, 1856	IX.
14952	Fitzgerald	Houses, portable, mode of constructing	May 27, 1856	IX.
15099	Flagg, Charles E	Platform supporters	June 10, 1856	X.
16230	Flanders, Charles	Coupling, railroad car	Dec. 16, 1856	X.
14231	Flanders, David N	Carriage seat, adjustable	Feb. 12, 1856	X.
14602	Flanders, George W	Gates, flood	April 8, 1856	XI.
	Flanders, L. B. (See Lockwood, Asahel, assignor.)			
14497	Fletcher, Calvin	Paddle-wheels	Mar. 25, 1856	VII.
15227	Fletcher, Robert H	Pumps, steam, method of operating valves of	July 1, 1856	XI.
14603	Florey, Orlando V	Vice	April 8, 1856	II.
15288	Flowers, Francis J	Vehicles, mode of attaching shafts to	July 8, 1856	X.
16161	Floyd, Thomas, assignor to Thomas Floyd and George H. Merklin.	Vault covers	Dec. 2, 1856	IX.
14356	Foering, B. F	Stoves, furnaces, &c., supplementary grating for	Mar. 4, 1856	V.
14558	Folsom, George F	Printing press	April 1, 1856	XVIII.
15209	Foote, Alvah, assignor to himself, Ira Russell, A. B. R. Sprague, and Henry Phelps.	Bedsteads, spring-bottoms for	June 24, 1856	XVII.
139	Foote, George F	Cars, railroad, ventilating	April 8, 1856	Addit'nal improvement.
16052	Foote, George F	Harvesting grain, machines for	Nov. 11, 1856	I.
16931	Forbes, John F	Skate-runners	Dec. 16, 1856	XXII.

14357	Ford, F. R.	Rifle-boxes	Mar. 4, 1856	II.
15691	Fordyce, John	Planters, seed	Sept. 9, 1856	I.
14861	Foresman, Hugh	Harvesters, self-raking attachments to	May 13, 1856	I.
393	Forrester, I. N.	Saws, reciprocating, method of hanging and straining.	Sept. 10, 1856	Reissue.
15634	Fosket, William, and Benjamin S. Stedman, assignors to Julius Pratt & Co.	Comb-blanks, machine for sizing	Aug. 26, 1856	XXI.
	Foss, Charles M., and Albert L. Lincoln. (See Lincoln, Albert L., assignor.)			
15161	Foss, Ephraim D	Fence, farm, for rolling ground	Aug. 19, 1856	IX.
15333	Foss, Cotton	Straw-cutter	July 15, 1856	I.
15374	Foster, Ambrose and George M	Building blocks from clay, &c., machine for	July 22, 1856	XV.
14156	Foster, Charles	Scaffolds	Jan. 29, 1856	IX.
15732	Foster, Joseph S	Ships, sails, reefing, upon extra yards	Sept. 16, 1856	VII.
	Foster, Newton. (See Jones, John M., assignor.)			
15480	Fowble, John W	Railroad signals, compressed air, mechanism for	Aug. 5, 1856	X.
	Fowler, C. A., and J. C. Miller. (See Burk, Thomas D.)			
15803	Fowler, David H	Boilers, steam	Sept. 30, 1856	VI.
14234	Fowler, Thaddeus	Pins, in paper, sticking	Feb. 12, 1856	II.
14604	Fox, A W	Planing felloes, machine for	April 8, 1856	XIV.
14982	Fox, J. W	Fluids, method of drawing from bottles	May 27, 1856	XI.
16232	Fox, George H., and Henry J. Siller	Faucet, filtering	Dec. 16, 1856	XI.
15210	Fravel, Abraham, assignor to himself and Thomas D. Lemon.	Drills, grain	June 24, 1856	I.
	Frear, A., J. Rowe, and W. Van Anden. (See Van Anden, assignor to Bushnell, assignor to others, &c., &c.)			
15923	Freeman, Daniel	Carriages	Oct. 21, 1856	X.
15228	French, A., and C. Frost	Paper, pulp, making boxes of	July 1, 1856	XVIII.
	French, A. J., and W. H. Kimball, assignors to themselves and A. H. Noyes. (See Kimball & French, assignors.)			
15869	French, Carlos	Cars, railroad, coiled springs for	Oct. 7, 1856	X.
14190	French, Elisha S	Vehicles, three-wheel	Feb. 5, 1856	X.
14860	French, Samuel F	Violins, bow for	May 13, 1856	XVIII.
14449	Frick, Jacob	Boilers, steam, feed and blow-off apparatus for	Mar. 18, 1856	VI.
15805	Frisbee, Marcus	Windmill	Nov. 6, 1856	XI.
15289	Frost, Charles, and A. W. Webster	Stone quarrying and cutting, machine for	July 8, 1856	XV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Frost & French. (See A. French and C. Frost.)			
143	Frost, Henry A.	Blinds, window, means for holding	May 6, 1856	Addit'nal improvement.
15038	Frost, Mahlon S.	Brakes, railroad car	June 3, 1856	X.
14862	Fuller, A. C.	Hat-felting machines	May 13, 1856	III.
16164	Fuller, A. L.	Thread, covering with wool	Dec. 2, 1856	III.
16271	Fuller, A. L.	Looms	Dec. 23, 1856	III.
15759	Fuller, S. B.	Wheels, carriage, machine for painting	Sept. 23, 1856	X.
	Fuller, Warren & Morrison. (See Pierce & Dulley, assignors.)			
	Fuller, Warren & Morrison. (See Pierce & Dulley, assignors.)			
	Fuller, Warren & Morrison. (See Pierce & Dulley, assignors.)			
14559	Fuzzard, William	Hat bodies and other articles, cloth for felting	April 1, 1856	III.
15290	Fuzzard, William	Hat bodies, machinery for felting	July 8, 1856	III.
15735	Gage, William	Harvesters	Sept. 16, 1856	I.
14560	Gage, William B.	Axles, railroad, journal box for	April 1, 1856	X.
	Gale, Charles S. (See Evans, R. M.)			
14605	Gale, William S.	Valves, piston, for steam-boiler regulators	April 8, 1856	VI.
15229	Gale, William S.	Steam-pressure regulators	July 1, 1856	VI.
16273	Galentine, C. B. and Samuel, and Andrew J. Russell.	Hoof expander.	Dec. 23, 1856	II.
789	Gallagher, Anthony J.	Stoves, cooking	May 13, 1856	Design.
14233	Gallaher, John S., jr.	Gas and steam cooking apparatus	Feb. 12, 1856	V.
	Gallaher, John S., jr. (See Wood, Wm. P., assignor.)			
	Gallaher, John S, jr. (See Wood, Wm. P., assignor to W. P. Wood and J. S. Gallaher, jr.,			

16053	Gallaudet, William L.	Blinds, slat, spring holder for	Nov.	11,	1856	IX.
14606	Gamble, William P.	Leather, polishing, machines for	April	8,	1856	XVI.
15606	Ganse, Hervey D.	Cultivator	Aug.	26,	1856	I.
14397	Garcin, Francois	Candles, making, preparation of tallow for	Mar.	11,	1856	IV
14232	Gardiner, P. G.	Axle, railroad car	Feb.	12,	1856	X.
14909	Gardner, Bela	Saw-mill blocks, method of operating	May	20,	1856	XIV.
15695	Gardner, Charles R.	Sewing-machines	Sept.	9,	1856	III.
15512	Gardner, Charles R.	Dies for screw blanks	Aug.	12,	1856	II.
16272	Garlick, John T.	Hinge, spring	Dec.	23,	1856	II.
14310	Garratt, Alfred C.	Hubs, carriage, box for	Feb.	26,	1856	X.
15039	Garrett, Cyrus, and Thomas Cottman	Plows, subsoil	June	3,	1856	I.
	Garrett, James. (See Burk, T. D., assignor.)					
14311	Garrison, S. A., and D. C. Morey	Coupling for the joints of felloes	Feb.	26,	1856	X.
	Garrison, Wm. F., and William A. Guild. (See Guild & Garrison.)					
15806	Gattman, Isaac	Compound wherewith to manufacture paint	Sept.	30,	1856	IV.
14983	Gaty, Samuel	Ships' capstans	May	27,	1856	VII.
15972	Gaussardia, I. Anthony	Preserving dead bodies, method of	Oct.	28,	1856	IV.
408	Gazlay, A. H., assignor to O. B. North & Co.	Saddles, harness	Oct.	28,	1856	Reissue.
14235	Gebby, R. and W. L.	Planters, seed	Feb.	12,	1856	I.
14236	Gee, William	Lubricator	Feb.	12,	1856	II.
16078	Geiss, Jacob, and Jacob Broscius	Vegetables, machines for cutting	Nov.	11,	1856	XVII.
351	George, A. M.	Spike machines	Feb.	12,	1856	Reissue.
15335	George, A. M.	Stone-dressing machine	July	15,	1856	XV.
15760	George, A. M.	Shells, explosive	Sept.	23,	1856	XIX.
15318	George, Henry S., assignor to Henry S. George and George Gratton.	Stoves, cooking	July	8,	1856	
14910	George, William O.	Oracular wheel or centre table	May	20,	1856	XXII.
15839	George, William O.	Cars, railroad, uncoupling arrangement for	Oct.	7,	1856	X.
14911	Gerau, Francis	Compounds, artificial, decoloring	May	20,	1856	IV.
14450	German, John, and C. B. Hoyt	Seeding machines	Feb.	12,	1856	I.
16008	Gerrish, Harlan P.	Husking corn, machines for	Nov.	4,	1856	I.
15883	Giambastiani, Domenico	Ladders, firemens'	Oct.	14,	1856	XXII.
15608	Gibbs, George and John	Dynamometers	Aug.	26,	1856	VIII.
16234	Gibbs, James E. A.	Sewing-machines	Dec.	16,	1856	III.
14057	Gibbs, L. H.	Fire-arms, breech loading	Jan.	8,	1856	XIX.
852	Gibbs, Samuel W., assignor to A. H. McArthur & Co.	Stoves, cooking	Dec.	9,	1856	Design.
853	Gibbs, Samuel W., assignor to G. W. Ball & Co.	Stoves, cooking	Dec.	23,	1856	Design.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
808	Gibbs, Samuel W., assignor to North, Chase, & North.	Stoves	June 24, 1856	Design.
840	Gibbs, Samuel W., assignor to North, Chase, & North.	Stoves	Oct. 7, 1856	Design.
806	Gibbs, Samuel W., assignor to Treadwell, Perry, & Norton.	Stoves	June 17, 1856	Design.
770	Gibbs, Samuel W., assignor to W. &. J. Treadwell, Perry, & Norton.	Stoves, elevated oven	Mar. 18, 1856	Design.
793	Gibbs, Samuel W., assignor to W. & J. Treadwell, Perry, & Norton.	Stoves	May 20, 1856	Design.
850	Gibbs, Samuel W., assignor to Wood, Roberts, & Cò.	Stoves, kitchen	Nov. 25, 1856	Design.
14653	Gibson, A. J	Vehicles, attaching thills and poles to	April 15, 1856	X.
144	Gibson, Abram J	Carriages, coupling for	May 27, 1856	Add'l imp't.
15483	Giffing, Isaac H	Ice, breaking, instrument for	Aug. 5, 1856	XXII.
15848	Gilbert, George	Trap, fly	Oct. 7, 1856	XXII.
14499	Gilman, Jesse	Lath machine	Mar. 25, 1856	XIV.
15482	Gilman, Lorenzo D	Wrench	Aug. 5, 1856	II.
	Gilman, L. D., and G. H. Starbuck. (See Starbuck & Gilman.)			
15421	Gilman, Samuel H	Sugar evaporators	July 29, 1856	IV.
14717	Gilman, Samuel H	Sugar evaporators	April 22, 1856	IV.
15481	Gilman, Samuel H	Furnaces, bagasse	Aug. 5, 1856	V.
383	Gilman, Samuel H	Furnaces, bagasse	Aug. 5, 1856	Reissue.
15694	Gilman, Samuel H	Sugar, evaporating, pans for	Sept. 9, 1856	IV.
15007	Gilpatrick, Benjamin	Saw-set	June 3, 1856	XIV.
14192	Gissinger, Samuel	Vice, bench	Feb. 5, 1856	II.
16303	Gissinger, Samuel, and John W. Kelberg, assignor to D. A. Morris.	Motion, rotary, converting reciprocating into	Dec. 23, 1856	XIII.
15946	Gleason, Edward	Casters, bottle	Oct. 21, 1856	XVII.
15127	Gleason, R., jr	Baskets, cake and fruit, silver plate	June 17, 1856	XVII.
14451	Gleason, R., jr	Inkstand	Mar. 18, 1856	XVIII.

763	Gleason, R., jr., assignor to R. Gleason & Sons	Bottle casters and egg-cup stands				
378	Glines, H. M., assignor to John M. and Simon F. Stanton, assignors to P. Bennet, J. Kendrick, and L. A. Cook.	Seine needles, machinery for filling	July	15, 1856	Design. Reissue.	
831	Glominski, A., assignor to D., A. E., & N. B. Powers.	Floor cloths	Sept.	16, 1856	Design.	
832	Glominski, A., assignor to D., A. E, & N. B. Powers.	Floor cloths	Sept.	16, 1856	Design.	
559	Glominski, Antoine, assignor to D., A. E., & N. B. Powers.	Floor cloths	Dec.	23, 1856	Design.	
15334	Glover, Carlos W	Harvesters, cutting device for	July	15, 1856		I.
15882	Glover, Charles W	Harvesters	Oct.	14, 1856		I.
14953	Goddard, Kingston	Axles, carriage, securing nuts to	May	27, 1856		X.
15607	Goddard, William	Hosiery, seamless, manufacturing	Aug.	26, 1856		III.
14954	Godfrey, Wm. B	Engine governor, for side-wheel ocean steamers	May	27, 1856		VI.
15337	Godman, Thomas J	Hogs, slaughtering, apparatus for	July	15, 1856		XXII.
15484	Goffe, Augustus J. and Demus	Knitting machines	Aug.	5, 1856		III.
	Goffin, F. C., and M. Erb. (See Erb & Goffin.)					
14158	Gold, Stephen J	Heating buildings by steam, apparatus for	Jan.	29, 1856		V.
14312	Gold, Stephen J	Steam heating apparatus, air-cock for	Feb.	26, 1856		V.
14500	Gold, Stephen J	Steam radiator cocks	Mar.	25, 1856		VI.
15513	Gomme, Theo., and C. E. A. Beaugrand	Metal ware, sheet, manufacture of	Aug.	12, 1856		II.
15485	Gooch. J. H	Straw-cutters	Aug.	5, 1856		I.
	Goodell, A. W., and H. R. Howlett. (See Howlett H. R., assignor.)					
16308	Goodell, Joseph H	Veneers, machine for cutting from the log	Dec.	23, 1856		XIV.
15849	Goodnow, David A	Scythes, attaching to snaths	Oct	7, 1856		I.
15128	Goodrich, Henry W	Pitchers, molasses	June	17, 1856		XVII.
14865	Goodrich, Horace N	Winnowing mills	May	13, 1856		I.
15459	Goodridge, Joseph, assignor to Boston Faucet Company.	Faucet	Aug.	1, 1856		XI.
15719	Goodridge, Joseph, assignor to Boston Faucet Company.	Faucet	Sept.	9, 1856		XI.
15720	Goodsell, L. A., assignor to L. A. Goodsell and D. H. Holt.	Shingling bracket	Sept.	9, 1856		XIV.
16116	Goodwin, Edwin O	Backgammon and checker boards	Nov.	25, 1856		XXII.
14626	Goodwin, Jacob W., and Moses C. Hawkins	Pumps, method of regulating by wind wheels	April	8, 1856		XI.
148	Goodwin, Jacob W., and Moses C. Hawkins	Pumps, method of regulating by wind wheels	July	15, 1856	Add'l Imp't.	

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14336	Goodyear, John, jr., and Thomas I. Berry, assignors to John Goodyear, jr., Thomas I. Berry, and Wm. M. Porter.	Trap, roach	Feb. 26, 1856	XXII.
15761	Gordon, Alexander	Straw-cutters, feed-rolls of	Sept. 23, 1856	I.
14016	Gordon, George P	Printing-press	Jan. 1, 1856	XVIII.
366	Gordon, George P	Printing-presses	April 8, 1856	Reissue.
16146	Gore, Mastin, and John P	Drilling rock, machine	Dec. 2, 1856	XV.
14863	Gorham, Jackson	Saw, hand	May 13, 1856	XIV.
15070	Gorsuch, R. B	Pumps, double-acting steam, method of effecting uniform pressure upon the pumping piston of.	June 10, 1856	XI.
14284	Gorsuch, Stephen	Seeding machines	Feb. 19, 1856	I.
838	Gott, John	Busts of J. C. Fremont	Oct. 7, 1856	Design.
15648	Gould, C H	Bedsteads	Sept. 2, 1856	XVII.
14608	Gould, Charles M, and Charles B. Lamb	Lanterns, submarine	April 8, 1856	V.
14864	Gould, J. H	Husking thimble	May 13, 1856	I.
15071	Gould, John H	Carriages, three-wheeled, for children	June 10, 1856	X.
14399	Gould, R	Tanning	Mar. 11, 1856	XVI.
15291	Goulding, John	Looms, Jacquard	July 8, 1856	III.
	Graff, Reisinger & Graff. (See Vedder, N. S., assignor.)			
15734	Graham, E. H	Fire-arms	Sept. 16, 1856	XIX.
780	Granger, Albert	Pen, steel	April 15, 1856	Design.
15230	Grayson, John	Sawing stone, machine for	July 1, 1856	XV.
	Gratton, George, and Henry S. George. (See George, Henry S., assignor.)			
15693	Gray, A. W	Horse powers, links of	Sept. 9, 1856	XIII.
	Gray, Edward A. (See White and Gray.)			
15692	Gray, George H	Vehicles, mode of attaching horses to	Sept. 9, 1856	X.
16233	Gray, Harvy	Jack, lifting	Dec. 16, 1856	XII.

14849	Green, Denison W., assignor to himself and Aretas Ferry.	Scythe fastenings	May 6, 1856	I.
14766	Green, Edwin J., and Moses H. Wheeler	Buggies, joint-bodied	April 29, 1856	X.
	Green, Hartsel P., and Jacob Estey. (See Burditt, Riley, assignor.)			
15009	Green, Jacob	Furnaces, gas consuming	June 3, 1856	V.
15101	Green, P. B., and E. A. Kennedy	Planters, seed	June 10, 1856	I.
	Green & Walter. (See Walter, William P., and Jacob Green.)			
784	Green, William H	Casters	April 22, 1856	Design.
14534	Green, Samuel	Morocco, tools for figuring	Mar. 25, 1856	XVI.
14096	Greene, Allen	Axles, mode of attaching thills to	Jan. 15, 1856	X.
14358	Greenhalgh, J., sen	Looms, power	Mar. 4, 1856	III.
15807	Greenleaf, John	Leather, softening, machines for	Sept. 30, 1856	XVI.
14607	Greenleaf, William	Carriage coupling	April 8, 1856	X.
352	Greenough, J. J., assignor to J. M. Singer and Edward Clark.	Sewing or stitching straight seams, machines for	Feb. 12, 1856	Reissue.
	Gregory, Ira W. (See Watson, William C., assignor.)			
	Grennell, Abel H. (See Houghton, Hiram L, assignor.)			
14654	Grennell, Abel H	Vines, mode of protecting	April 15, 1856	I.
14452	Griffiths, Robert	Nut machine	Mar. 18, 1856	II.
411	Griffiths, Robert	Nut machine	Nov. 25, 1856	Reissue.
16142	Griffiths, Robert	Nut machines	Dec. 2, 1856	II.
16304	Grimes, Andrew, assignor to Charles Day	Charcoal burning	Dec. 23, 1856	IV.
	Grimes, William C	Spark arresters	Jan. 28, 1856	Extension.
15160	Grinnell, Amos L., and John Z. Williams	Potato diggers	June 10, 1856	I.
14561	Griswold, George G	Augers, method of manufacturing	April 1, 1856	II.
15762	Griswold, George W	Boots and shoes, heels of, metallic braces for	Sept. 23, 1856	XVI.
14691	Griswold, George W	Door spring	April 15, 1856	II.
15336	Griswold, Victor M	Photographic pictures, collodion for	July 15, 1856	XVIII.
15924	Griswold, V. M	Photographic pictures, bituminous ground for	Oct. 21, 1856	XVIII.
14017	Grooms, Benjamin	Fire-arms, repeating	Jan. 1, 1856	XIX.
14957	Gross, Henry	Saws, circular, guard for	May 27, 1856	XIV.
15072	Gross, Henry	Fire-arms, breech loading	June 10, 1856	XIX.
15763	Gross, Henry	Bed pins, manufacturing, device in machines for	Sept. 23, 1856	XIV.
16144	Grosvenor, Jonathan P	Planing machines, method of clamping cutters in cutter heads for.	Dec. 2, 1856	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Grover, Manasseh, and George W. Zeigler. (See Zeigler & Grover.)			
15358	Grover, Oliver F	Printer's composing stick	July 15, 1856	XVIII.
14956	Grover, William O	Sewing machines, cases for	May 27, 1856	III.
	Grover, W., and William W. Wier. (See Wier & Grover.)			
	Grover & Taggart, assignors. (See Taggart & Grover, assignors.)			
16009	Groves, Hiram	Musical instruments, automatic	Nov. 11, 1856	XVIII.
14337	Guard, Chauncey H., assignor to John A. Scroggs and himself.	Wheelwright machines	Feb 26, 1856	XIV.
15319	Guest, John	Vessels, sounding guards for	July 8, 1856	VII.
382	Guild, William H., and William F. Garrison	Valves, operating, in direct acting steam engines	July 29, 1856	Reissue.
14313	Guiou, P. C	Bridges, girders for	Feb. 26, 1856	IX.
14398	Guiou, Peter C	Spark conductors for locomotive trains	Mar. 11, 1856	V.
16010	Guiou, P. C	Cowl, or draught accelerator for steamers	Nov. 4, 1856	V.
15636	Guiou, Peter C., and Paul K. Wombaugh, assignors to Paul K. Wombaugh.	Lamps	Aug. 26, 1856	V.
14912	Gunner, John, jr	Shutters, fastening, swing-bolt for	May 20, 1856	II.
	Gurley, Wm. & Kenney. (See Kenney, Cyrus, and Wm. Gurley.)			
14809	Gustine, John, and J. M. Rankin	Scraper, road	May 6, 1856	IX.
14718	Haas, Christian, and John C. Noll	Spokes, driving, machine for	April 22, 1856	XIV.
14383	Haasz, Daniel F	Pianos, grand, construction of	Mar. 4, 1856	XVIII.
15764	Hackett, Charles W	Stamp, hand	Sept. 23, 1856	XVIII.
817	Hackett, Joseph	Stoves, cooking	July 29, 1856	Design.
	Hager, Cox & Cox. (See Smith, Brown & Read, assignors.)			
	Hagen, Conrad, and Ferdinand Wieterich. (See Wieterich & Hagen.)			
14812	Hager, Abraham, & Younge Allyn	Furnaces, bagasse	May 6, 1856	V.
	Hager, Cox & Cox. (See Horton & Currie.)			

	Haigh, James P., A. Hartupee, and J. Morrow. (See Kenyon, Wm., assignor.)			
	Haigh, J. P., A. Hartupee, and John Morrow. (See Hartupee & Morrow, assignors.)			
16179	Haluaut, Elie Joseph	Process for mashing grain	Dec. 9, 1856	I.
	Haines, M. J., & B. Kuhns. (See Kuhns & Haines.)			
14719	Hale, Wm. H.	Annunciators, hotel	April 22, 1856	XXII.
15110	Hall, Alexander, assignor to Alexander Hall and James C. Caldwell.	Fire arms, repeating	June 10, 1856	XIX.
	Hall, Alfred	Brick-press, construction of the	Sept. 3, 1856	Extension.
16274	Hall, Andrew M.	Mowing machines	Dec. 23, 1856	I.
14237	Hall, Elijah	Looms, power	Feb. 12, 1856	III.
15231	Hall, Franklin D.	Pitchers, refrigerating	July 1, 1856	XVII.
15182	Hall, George	Planters, seed	June 24, 1856	I.
15292	Halsey, James E.	Fire-arms	July 8, 1856	XIX.
14501	Halvorson, Halvor, assignor to Slocum & Watkinson.	Miniature case	Mar. 25, 1856	XVIII.
15293	Hamer, James A.	Brick machine	July 8, 1856	XV.
14955	Hamlin, Emmons, assignor to Hamlin and Henry Mason.	Musical instruments, reed	May 27, 1856	XVIII.
137	Hammer, Adolph	Mash machines	Mar. 18, 1856	Addit'nal improvement.
15696	Hammen, H. B.	Planters, hand, corn	Sept. 9, 1856	I.
14058	Hammond, Charles	Hammer-heads to shafts, attaching	Jan. 8, 1856	II.
16301	Hannah, W., assignor to L. H. Bowen and W. Hannah.	Bolts, trimming, machine for	Dec. 23, 1856	II.
15486	Hannay, Peter	Bank notes, bills, &c., blanks for	Aug. 5, 1856	XVIII.
	Hanson, L. W., and Richard Colburn. (See Colburn & Hanson.)			
344	Hardinge, Benjamin	Silica, apparatus for dissolving	Jan. 22, 1856	Reissue.
	Hargraves, Thomas S., and W. C. Chambers. (See Chambers & Hargraves.)			
15546	Harman, Isaac, assignor to Isaac Harman and William Bickel.	Brick machines	Aug. 12, 1856	XV.
16011	Harragan, Dennis	Brake, railroad car	Nov. 11, 1856	X.
14585	Harrington, John R.	Carpet lining, machines for making	April 1, 1856	III.
	Harrington, L. (See Carter C. P., assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Harrington, L., and W. O. Thompson. (See Thompson & Harrington.)			
	Harris & Corliss. (See Corliss, George H., and Elisha Harris.)			
14193	Harris, Elisha	Hooks, ships', machine for bending	Feb. 5, 1856	II.
	Harris, Elisha. (See Corliss & Harris.)			
	Harris, Elisha. (See Corliss & Harris.)			
16054	Harris, John C	Boilers, steam, water-gauges for	Nov. 11, 1856	VI.
15649	Harris, Josephus P	Ploughs	Sept. 2, 1856	I.
14609	Harris, Samuel	Sifting coal and other articles, machine for	April 8, 1856	V.
16276	Harris, Sandy	Bedstead fastenings	Dec. 23, 1856	XVII.
14628	Harrison, Charles	Cocks, basin	April 8, 1856	XI.
14562	Harrison, James	Steam whistles, automatic, on locomotives	April 1, 1856	VI.
14059	Harrison, James, jr	Locks, pad	Jan. 8, 1856	II.
	Harrison, Thomas. (See Oliver & Harrison.)			
	Hart, Benjamin J. (See Henry, Levi J, assignor.)			
15073	Hart, William	Watchmakers, tools for	June 10, 1856	XVIII.
	Hartupee, A., and Haigh & Morrow. (See Kenyon, William, assignor)			
15650	Hartupee, Andrew, and John Morrow, assignors to J. P. Haigh, A. Hartupee, and J. Morrow.	Engines, steam, adjustable cut-offs for	Sept. 2, 1856	VI.
14655	Hartwell, Samuel E	Musquito-nets, frames for	April 15, 1856	XXII.
15232	Harvey, John L, and C. A. Mills	Paper-clip	July 1, 1856	XVIII.
14097	Harvey, W. W	Pruning trees, implements for	Jan. 15, 1856	I.
14535	Haseltine, John	Water wheels	Mar. 25, 1856	XI.
	Haswell, Livingston & Root. (See Carney, N B., assignor.)			
14238	Hatch, Anson	Press, hand, for stamping letters, &c.	Feb. 12, 1856	XVIII.
15736	Hatch, George W	Tanning, preparation of hides for	Sept. 16, 1856	XVI.

	Hathaway, David, assignor to Cox, Richardson, & Boynton.	Stoves, parlor	May 20, 1856	Design.
826	Hathaway, David, assignor to Cox, Richardson, & Boynton.	Stoves, parlor	Aug. 19, 1856	Design.
15651	Hathaway, John M	Shot-pouches, chargers for	Sept. 2, 1856	XIX.
14658	Haviland, I. E	Marble, sawing in obelisk form, machines for	April 15, 1856	XV.
15974	Havis, Jesse D	Planters, seed	Oct. 28, 1856	I.
14692	Hawes, R. L	Fluid meter, diaphragm	April 15, 1856	XI.
16207	Hawes, R. L	Books, &c., machine for paging	Dec. 9, 1856	XVIII.
15181	Hawkins, Henry J. and Thomas	Engines, steam, adjustable cut-offs for	June 24, 1856	VI.
	Hawkins, Moses C. (See Goodwin & Hawkins.)			
	Hawkins, Moses C., and Jacob W. Goodwin. (See Goodwin & Hawkins.)			
16055	Hay, Samuel L., and H. B. Osgood	Furnaces, house, method of regulating the draught of.	Nov. 11, 1856	V.
14610	Hayes, Augustus A., assignor to Geo. Ashmun and Charles Phelps.	Oil from cotton seed, processes for extracting	April 8, 1856	IV.
14400	Hayes, Henry	Carriage tops	Mar. 11, 1856	X.
15652	Hayes, Henry	Boring and mortising hubs, method of	Sept. 2, 1856	XIV.
15422	Hayes, John P	Ovens, bake	July 29, 1856	V.
16143	Hayes, John P	Ovens	Dec. 2, 1856	V.
15514	Hayes, J. W	Box, fruit	Aug. 12, 1856	XXII.
14720	Hayes, Wm. E	Stoves, cooking arrangement of, dampers of	April 22, 1856	V.
16322	Haynes, E. K., assignor to himself and A. M. Mowe.	Sowing seed broadcast, machine for	Dec. 23, 1856	I.
	Hayward, Bartlett & Co. (See Smith, Brown & Read, assignors.)			
14657	Hayward, Nathaniel	India rubber, manufacture of	April 15, 1856	IV.
14811	Hayward, Nathaniel	India rubber cloth, elastic, preparing	May 6, 1856	IV.
16013	Hayward, Nathaniel	Shoes, India rubber, catch for	Nov. 4, 1856	XVI.
14194	Hazard, O. S., and Isaac Peck	Rope, machinery for making	Feb. 5, 1856	III.
15653	Heaberlin, H	Rakes, hay	Sept. 2, 1856	I.
14536	Heald, Issachar A	Marble in obelisk form, machines for sawing	Mar. 25, 1856	XV.
	Heath, Dousman, & Reily. (See Reily, John, assignor.)			
14866	Heath, Edward	Punching machine	May 13, 1856	II.
	Heath, Stephen P., and Robert Pilson. (See Pilson & Heath.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14627	Heaton, John D	Valves, arrangement of, for hydraulic engines	April 8, 1856	XI.
16277	Heckendorn, Jacob	Plows	Dec. 23, 1856	I.
15515	Heddaeus, Adolphus	Nail plate feeding apparatus	Aug. 12, 1856	II.
15162	Hedgcock, Thomas	Quadrant, reflecting	June 17, 1856	VIII.
14914	Hedley, Edward	Shingle machine	May 20, 1856	XIV.
16235	Heller, John	Water mill, portable	Dec. 16, 1856	XI.
	Helm & Tyer. (See Tyer, Henry G., and John Helm.)			
14915	Henderson, John	Horse shoe	May 20, 1856	II.
14611	Henderson, William M	Valves, slide, and means for operating them, arrangement of.	April 8, 1856	VI.
	Hendrick, Peckham, & Hopkins. (See Hopkins, Henry S., assignor.)			
14958	Hendrickson, Ezekiel M	Lock and key	May 27, 1856	II.
16056	Hengstenberg, August	Candle mould machine	Nov. 11, 1856	IV.
15233	Hennon, John	Carriage, axle trees for, method of turning	July 1, 1856	X.
16117	Henry, Geo. G	Yarns, cotton, manufacturing	Nov. 25, 1856	III.
15592	Henry, Levi J., assignor to Benjamin J. Hart	Musquito canopy	Aug. 19, 1856	XVII.
15211	Henry, Remy, assignor to James Smith	Pumps, steam, method of operating steam valves of.	June 24, 1856	XI.
15977	Herbert, G. E. W	Water wheel	Oct. 28, 1856	XI.
795	Herrick, Thos. H., assignor to Lemuel M. Leonard.	Stoves, cooking	May 20, 1856	Design.
16180	Hervey, H. L	Lamps, pocket	Dec. 9, 1856	V.
14314	Hervey, Horace L	Bridge, arched trussed	Feb. 26, 1856	IX.
14453	Hervey, Horace L	Harvester cutters	Mar. 18, 1856	I.
15040	Hervey, Horace L	Measuring distances, parallectic instruments for	June 3, 1856	VIII.
15236	Heuermann, John, and Jonathan Reeves	Harvesters	July 1, 1856	I.
	Hewlett, C. H. (See Rookhout & Hewlett.)			
14867	Hewson, James	Portmonnaies and pocket books, fastening for	May 13, 1856	XVIII.
	Hibbard, B., and Wm. H. Burnham. (See Burn-			

	& Plantz.)			
14563	Hill, Albert V.	Slide rests	April 1, 1856	II.
	Hill, C. A., and V. O. Balcom. (See Balcom & Hill.)			
14844	Hill, George W., assignor to Francis Lyons and George W. Hill.	Saw-mill dogs	May 6, 1856	XIV.
15808	Hill, Joseph A.	Brick machines	Sept. 30, 1856	XV.
	Hill, Luther. (See Stratton, Lorenzo, assignor.)			
14868	Hilliard, James R.	Railroad bars, lock-joint for	May 13, 1856	IX.
14659	Hilliard, Jonathan J.	Cloth, stretching, spreading rollers for	April 15, 1856	III.
15976	Hine, Reuben M.	Forks, shovels, and hoes, agricultural, the handles of.	Oct. 28, 1856	I.
14159	Hinckley, Jonas	Shafts, &c., universal joint for connecting	Jan. 29, 1856	XII.
15180	Hinman, David	Grindstones, hanging	June 24, 1856	XIII.
14660	Hinman, William	Bedstead fastenings	April 15, 1856	XVII.
14454	Hitchcock, A. C., and C. H. Amidon	Mortising tool	Mar. 18, 1856	XIV.
14721	Hoard, C. B	Boilers, steam	April 22, 1856	VI.
14502	Hoard, J. W	Pile driver	Mar. 25, 1856	IX.
14913	Hock, John G	Gas retort fastenings	May 20, 1856	IV.
15010	Hock, John G	Gas retort bench, arrangement of a	June 3, 1856	IV.
	Hoe, Richard M	Metallic surfaces, particularly saw plates, machinery for polishing and grinding.	May 26, 1856	Extension.
15501	Hoe, Richard M	Types, securing on rotary beds	Aug. 5, 1856	XVIII.
14267	Hoff, C. C., assignor to E. P. Russell	Roofing, mastic, construction of	Feb. 12, 1856	IX.
	Hoffman, Conrad. (See Lindner & Hoffman.)			
	Hoffman, F. W. (See Blittkowski & Hoffman.)			
	Hoffman, F. W. (See Blittkowski & Hoffman.)			
15516	Hoffman, Frederick W.	Fire-arms	Aug. 12, 1856	XIX.
16181	Hoge, Thomas	Fence for stock pen, portable prairie	Dec. 9, 1856	IX.
	Holden, Daniel. (See Priestly Thomas, assignor.)			
	Hollingsworth & Kinyon. (See Kinyon & Hollingsworth.)			
14239	Holly, Birdsill	Engines, condensing steam, which are used for pumping.	Feb. 12, 1856	VI.
14870	Holman, William J.	Railroads, compound rails for	May 13, 1856	IX.
	Holmead, Leigh R. (See Phillips, John H., assignor.)			
14018	Holmes, Elijah	Spoke-shave	Jan. 1, 1856	XIV.
14753	Holmes, Geo. W., assignor to Jarvis C. Marble	Hoop machine	April 22, 1856	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14869	Holmes, I. B	Wash-boards, machinery for manufacturing	May 13, 1856	XVII.
14916	Holmes, I. B	Metal, sheet, working in	May 20, 1856	II.
15517	Holmes, Ira	Filtering sand for cider	Aug. 12, 1856	IV.
16087	Holmes, R. G., and W. H. Butler	Safe, burglar proof	Nov. 18, 1856	II.
15074	Holmes, William	Threshing machines	June 10, 1856	I.
15238	Holmes, Lawrence	Match machine	July 8, 1856	XXII.
	Holt, D. H., and L. A. Goodsell. (See Goodsell, L. A., assignor.)			
	Holyoke, Samuel G. (See Root, Riley.)			
14813	Hood, B. L., & E. P. Monroe	Salt evaporators	May 6, 1856	IV.
14871	Hooker, W. D	Knives to cutter heads, method of securing	May 13, 1856	XIV.
	Hooper, H N., & Co. (See Kershaw, E., assignor.)			
14767	Hopkins, Edward	Planters, hand-seed	April 29, 1856	I.
14545	Hopkins, Henry S., assignor to Hopkins, Hendrick & Peckham.	Engines, steam, means for regulating cut-offs for	Mar. 25, 1856	VI.
15975	Hopkins, J. R	Salts, evaporators for	Oct. 28, 1856	IV.
15375	Hopkins, Lansing E.	Hat bodies, machines for felting	July 22, 1856	III.
15563	Hopkins, Lansing E.	Compounds, felting	Aug. 19, 1856	III.
15562	Hopkins, William W	Knife cleaners	Aug. 19, 1856	XVII.
14240	Horn, J. L	Planters, cotton seed	Feb. 12, 1856	I.
14722	Horsford, E. N.	Acid phosphoric, preparing, as a substitute for other solid acids.	April 22, 1856	IV.
16088	Horton, Chase B	Grain, cleaning, machines for	Nov. 18, 1856	XIII.
16014	Horton, Elmore	Fishing implement	Nov. 4, 1856	XXII.
797	Horton, James, and John Currie, assignors to Cox, Hager & Cox.	Ranges, portable	May 27, 1856	Design.
15295	Hortsmann, Wm. J.	Looms	July 8, 1856	III.
15294	Hotchkiss, A. A., and Andrew	Currycombs	July 8, 1856	XXII.
	Hotchkiss & Merriman, Manufacturing Co. (See James C. Cook, assignor.)			

	Houghton, F. A., and A. F. Johnson. (See Johnson, A. F., assignor.)			
	Houghton, F. A., and A. F. Johnson. (See Johnson & Houghton.)			
14177	Houghton, Hiram L., assignor to Abel H. Grennell.	Marble, mouldings on, machines for cutting	Jan. 29, 1856	XV.
15131	Houghton, Henry S	Traveller, brushes for cleaning	June 17, 1856	III.
15564	Houseworth, Abraham	Paddle-wheel	Aug. 19, 1856	VII.
14661	Hovey, Wm. H	Harvesters, grain and grass	April 15, 1856	I.
14693	Hovey, Wm. H	Harvester, raking attachments	April 15, 1856	I.
14768	Hovey, Wm. H	Harvester, cutter-blades, attaching, to the sickle bar	April 29, 1856	I.
	Howard, B. (See Smith, L. S., assignor.)			
15973	Howard, Charles A	Gas generator	Oct. 28, 1856	IV.
16275	Howe, E. B	Clothing, card, trimming	Dec. 23, 1856	III.
15609	Howe, Elias, jr	Bedstead	Aug. 26, 1856	XVII.
15111	Howe, John J., and Truman Piper, assignors to Howe Manufacturing Company.	Pins, japanning	June 10, 1856	II.
15112	Howe, John J., and Truman Piper, assignors to Howe Manufacturing Company.	Pins, machine for sticking	June 10, 1856	II.
	Howe Manufacturing Company. (See John J. Howe and Truman Piper, assignors.)			
	Howe Manufacturing Company. (See John J Howe and Truman Piper, assignors.)			
	Howell, Colton, and La Baw. (See La Baw, George W., assignor.)			
15947	Howell, Jacob H	India rubber hose, modes of making	Oct. 21, 1856	IV.
	Howell, M. H. (See Ingalls, Joshua K., assignor.)			
	Howland & Marsh. (See Marsh, Philo, assignor.)			
15940	Howlett, H. R., assignor to himself and A. W. Goodell.	Saws, filing and setting	Oct. 21, 1856	XIV.
15654	Hoyt, Benaiah C	Ploughs	Sept. 2, 1856	I.
15423	Hoyt, Charles	Stave machinery, certain improved devices in	July 29, 1856	XIV.
14959	Hoyt, F. A	Boilers, steam floats for	May 27, 1856	VI.
16182	Hoyt, F. A	Boilers, steam, water gauges for	Dec. 9, 1856	VI.
	Hoyt & German. (See German, John, and C. B. Hoyt.)			
14723	Hubbard, George	Sails, top-yards, suspending extra	April 22, 1856	VII.
15234	Hubbard, M. G	Carriage-springs, mode of adjusting	July 1, 1856	X.
15655	Hubbard, M. G	Reapers, raking attachment for	Sept. 2, 1856	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15885	Hubbard, M. G	Wagons, side spar, arrangement of springs for	Oct. 14, 1856	X.
16183	Hubbard, M. G	Reaping-machines, teeth for	Dec. 9, 1856	I.
15338	Hubbard, Moses G	Mowing and reaping-machines, frames of	July 15, 1856	I.
16057	Hubbard, Moses G	Harvesters, grain and grass, cutting apparatus of	Nov. 11, 1856	I.
16118	Hubbard, Wm. W	Metal, lathes for planing	Nov. 11, 1856	II.
14133	Hubbell, Wm. W	Shells, explosive, eccentric	Jan. 22, 1856	XIX.
14503	Hubbell, Wm. W	Shells, explosive	Mar. 25, 1856	XIX.
15075	Hubbell, Wm. W	Shot and shell, sabot for rotating	June 10, 1856	XIX.
15565	Hubbs, Isaac G	Adding numbers, machines for	Aug. 19, 1856	VIII.
15235	Huddleston, Silas	Bedsteads	July 1, 1856	XVII.
	Huffer & Fahrney. (See Fahrney, Samuel, assignor.)			
14754	Huffman, Samuel, assignor to Samuel Huffman and J. D. Browne.	Shovel and tongs combined	April 22, 1856	V.
14917	Hughes, David E	Telegraphs	May 20, 1856	VIII.
14195	Hughes, Harvey J	Brick presses	Feb. 5, 1856	XV.
337	Hulbert, Samuel	Plows	Jan. 1, 1856	Reissue.
14612	Hull, L	Whip handles, machine for tapering whalebone for	April 8, 1856	XXII.
	Hull, T. and S. (See Sandford, G. and T., and S. Hull.)			
15376	Humphrey, James	Gas stop cock	July 22, 1856	IV.
15884	Humphrey, J. L	Salt evaporators	Oct. 14, 1856	IV.
14098	Hunt, Caleb S	Presses, cotton	Jan. 15, 1856	XII.
14613	Hunt, Henry W., and John Sands	Mortar, machines for mixing lime and sand for	April 8, 1856	XV.
16236	Hunt, James G	Fence, field, portable	Dec. 16, 1856	IX.
14547	Hunt, Richard	Horse power	Mar. 25, 1856	XIII.
14019	Hunt, Walter	Collars, shirt	Jan. 1, 1856	XXI.
15656	Hunt, Warren	Axes, machine for testing	Sept. 2, 1856	II.
15518	Hunter, C., and N. Isham	Gates, farm, method of raising, lowering, and operating.	Aug. 12, 1856	IX.
15377	Hunter, Stephen R	Harvesters	July 22, 1856	I.
16145	Hunter, S. R	Raking apparatus for harvesters	Dec. 2, 1856	

	[illegible]	Saws, circular, method of hanging and adjusting	Feb.	12, 1856	XIV.
15130	Hutton, George	Saws, circular, method of adjusting obliquely to their arbors.	June	17, 1856	XIV.
14384	Hutton, Pelatiah M.	Pavement, cast-iron, mode of constructing	Mar.	4, 1856	IX.
14584	Huygens, Geo. W. O., assignor to himself, Charles Bender, and D. F. Tiedeman.	Bridges	April	1, 1856	IX.
16058	Hyatt, G. W	Forks for handling heated plates	Nov.	11, 1856	XVII.
	Hyde, Joseph A. (See Fisher, Maj. H., assignor.)				
15378	Hyter, Joseph	Traps, fly	July	22, 1856	XXII.
15183	Iliff, Charles R.	Plotting instruments	June	24, 1856	VIII.
15424	Ingalls, E. T.	Boiler, steam, furnaces	July	29, 1856	VI.
14456	Ingalls, Joshua K.	Grating, illuminating	Mar.	18, 1856	IX.
15113	Ingalls, Joshua K., assignor to M. H. Howell	Metal beams	June	10, 1856	II.
14663	Ingersoll, Simon	Presses, hay and cotton	April	15, 1856	XII.
15913	Ingersoll, Simon, assignor to Farmers' and Mechanics' Manufacturing Company.	Trees, felling, method of	Oct.	14, 1856	XIV.
15978	Ingham, Harvey B.	Smut machines	Oct.	28, 1856	XIII.
15239	Isham, Henry	Locks	July	1, 1856	II.
	Isham, N., and C. Hunter. (See Hunter & Isham.)				
15425	Isham, R. H.	Rifle shot, mode of patching	July	29, 1856	XIX.
	Ivens, E. M., and L. H. Allen, assignees. (See Allen, L. H., assignor.)				
	Ives & Gray. (See Gray, S. H., assignor.)				
15077	Ives, James	Saddle trees, mode of attaching pads to	June	10, 1856	XVI.
16089	Ives, Wm. A.	Lock, spring latch and	Nov.	18, 1856	II.
14242	Jackman, S. S.	Puddlers' balls, elevators for	Feb.	12, 1856	II.
16238	Jackson, Peter H.	Ships' windlass	Dec.	16, 1856	VII.
14704	James, Benjamin, assignor to Roswell E. James	Awl haft	April	15, 1856	II.
14315	James, Charles T.	Projectiles	Feb.	26, 1856	XIX.
14872	James, Daniel S	Chairs, invalid	May	13, 1856	XVII.
	Jameson & Willard. (See Willard, Geo., assignor.)				
15426	Jeffers, James D., Joseph Sparks, and John M. Jeffers.	Planters, corn	July	29, 1856	I.
15948	Jenkins, J. V.	Shearing sheep	Oct.	21, 1856	I.
14359	Jenks, George C.	Coal holes, guards for	Mar.	4, 1856	IX.
14061	Jenks, George L.	Weavers' harness, machinery for making	Jan.	8, 1856	III.
15184	Jenks, Gustavus A.	Wrenches for gas-pipe, &c.	June	24, 1856	II

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14504	Jenks, William	Planters, hand, corn	March 25, 1856	I.
16237	Jennings, Lewis	Sewing machines	Dec. 16, 1856	III.
15567	Jewett, Frederick A.	Carriages, thorough braces for	Aug. 19, 1856	X.
16120	Johnson, A. F.	Sewing machines, stitches for	Nov. 25, 1856	III.
15635	Johnson, A. F., assignor to himself and F. A. Houghton.	Sewing machines	Aug. 26, 1856	III.
16315	Johnson, A. F., and F. A. Houghton	Sewing machines	Dec. 23, 1856	III.
14360	Johnson, Charles H.	Heating buildings by the combination of and burning gas, air, and steam, apparatus for.	March 4, 1856	V.
138	Johnson, Charles H.	Gas-burner	March 18, 1856	Add'l imp't.
15698	Johnson, Danforth	Car-spring, metallic	Sept. 9, 1856	X.
14099	Johnson, Frank G.	Wind-wheels, speed of, method of regulating	Jan. 15, 1856	XI.
14255	Johnson, John	Looms, power	Feb. 19, 1856	III.
	Johnson, John, and C. Tompkins. (See Tompkins & Johnson.)			
14062	Johnson, Joseph	Hats, manufacture of	Jan. 8, 1856	III.
760	Johnson, L.	Printing-type	Feb. 12, 1856	Design.
14918	Johnson, Morgan S.	Windmills, method of regulating	May 20, 1856	XI.
14815	Johnson, Moses A.	Yarns, felted, manufacturing	May 6, 1856	III.
14020	Johnson, Waterman B	Boots and shoes, pegging, machines for	Jan. 1, 1856	XVI.
16208	Johnson, W. H.	Cement, incorporating bituminous liquids with wet earths for a.	Dec. 9, 1856	IV.
355	Johnson, William H.	Sewing-machines	Feb. 26, 1856	Reissue.
15765	Johnson, J. I.	Corn-shellers	Sept. 23, 1856	I.
14724	Johnston, Jas. J.	Moulding, flasks for	April 22, 1856	II.
14505	Jones, Chas	Sifters, ash	March 25, 1856	V.
16163	Jones, Edwin	Planing, Bramah, machine	Dec 2, 1856	XIV.
15610	Jones, J. Herba	Planters, hand seed	Aug. 26, 1856	I.
14662	Jones, John	Candle cutting apparatus	April 15, 1856	IV.
14919	Jones, John M.	Printing machine	May 20, 1856	XVIII.
14134	Jones, John M., assignor to Newton Foster	Planters, cotton seed	Jan. 22, 1856	I.
14100	Jones, R. W.	Brick machines	Jan. 15, 1856	XV.

	Jordan, J. H., and J. M. Merryman. (See Merryman, John M., assignor.)					
15487	Jordan, Wm. A.	Boats, line-ferry, or flying bridges, means for guiding.	Aug.	5,	1856	VII.
15766	Jordan, William A.	Brick machines	Sept.	23,	1856	XV.
14564	Joslyn, Edward	Mortising machine	April	1,	1856	XIV.
15240	Joslyn, B. F	Fire-arms, breech-loading	July	1,	1856	XIX.
16090	Jouan, A.	Vessels, lee-boards for	Nov.	18,	1856	VII.
16091	Jouan, A.	Propeller-shafts	Nov.	18,	1856	VII.
15850	Jouan, Auguste	Vessels, steam, arrangement of elastic plate paddles for.	Oct.	7,	1856	VII.
	Joyce, Jacob O. (See McPherson, John L., and J. O. Joyce.)					
15488	Joyce, Jacob O.	Mills, corn and cob	Aug.	5,	1856	XIII.
15102	Judd, Daniel	Excavator, rotary	June	10,	1856	IX.
15697	Juengst, George	Gear, reversing	Sept.	9,	1856	XIII.
16121	Julier, Edward	Spokes, machine to aid in making, by hand	Nov.	25,	1856	XIV.
14817	Kahle, Mathew S.	Scrapers, dumping	May	6,	1856	IX.
14816	Kahle, Mathew S.	Clover seed, machines for saving	May	6,	1856	I.
15103	Kaighn, George B.	Vehicles, shafts of, mode of attaching horses to	June	10,	1856	I.
	Keach, Abram, *et al.* (See Sargent & Keach, assignors.)					
14243	Keehnold, Ferdinand	Wrench	Feb.	12,	1856	II.
	Keeler, Jas. R. (See Woodford, E. S., assignor.)					
	Kelberg & Gissinger. (See Gissinger & Kelberg, assignors to Morris.)					
15809	Kellogg, D. J.	Photographic instruments	Sept.	30,	1856	XVIII.
15296	Kells, Philip H	Horse power, reversible	July	8,	1856	XIII.
406	Kells, P. H	Horse power, reversible	Oct.	28,	1856	Reissue.
14361	Kelly, James	Scales, weighing	Mar.	4,	1856	XII.
15886	Kelly, James	Ships' blocks, anti-friction bushing for	Oct.	14,	1856	VII.
14101	Kendall, A.	Shingle machines	Jan.	15,	1856	XIV.
14021	Kendall, Moses W. S.	Smoke-houses	Jan.	1,	1856	IX.
	Kendrick, J., P. Bennet and L. A. Cook. (See Glines, H. M., assignor.)					
14136	Kennedy, David	Vats, tan, arrangement of	Jan.	22,	1856	IV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Kennedy, E. A., and P. B. Green. (See Green & Kennedy.)			
15241	Kenney, Cyrus, and William Gurley	Hinges, butt, machine for grinding	July 1, 1856	II.
15737	Kenney, George	Sleighs, shafts to, mode of attaching	Sept. 16, 1856	X.
16122	Kenny, George	Carriages, turning circles for	Nov. 25, 1856	X.
15460	Kenny, George, assignor to George Kenny and George N. Davis.	Whiffle-trees	July 29, 1856	X.
15461	Kenny, George, assignor to George Kenny and George N. Davis.	Whiffle-trees	July 29, 1856	X.
14316	Kent, Edward N	Gold and other precious metals from foreign substances, machines for separating.	Feb. 26, 1856	II.
	Kent, Joseph. (See Brown, J. S., assignor.)			
361	Kenyon, William, assignor to Joseph P. Haigh, Andrew Hartupee, and John Morrow.	Nuts, washers, &c., machine for making	Mar. 18, 1856	Reissue.
15949	Kern, James M	Washing machines	Oct. 21, 1856	XVII.
16209	Kern, James M	Seeding machines	Dec. 9, 1856	I.
14268	Kern, James M., assignor to Enoch P. Fitch, and Isaac Scott.	Saws, circular, method of concaving	Feb. 12, 1856	XIV.
14705	Kern, James M., assignor to Isaac Scott and E. P. Fitch.	Saws, circular, method of adjusting for concave or convex work.	April 15, 1856	XIV.
14457	Kernan, Edward R	Window shades, transparent, processes for making	Mar. 18, 1856	IV.
15767	Kerr, David B	Carpeting, ingrain, manufacturing	Sept. 23, 1856	III.
14178	Kershaw, E., assignor to Kershaw and H. N. Hooper & Co.	Lock, cell	Jan. 29, 1856	II.
15041	Kesling, George	Fire-arms	June 3, 1856	XIX.
15657	Ketcham, Charles	Pen, fountain, ruling	Sept. 2, 1856	XVIII.
15339	Ketchum, A. C	Wheels, railroad car	July 15, 1856	X.
14788	Ketchum, A C., assignor to Edward B. Olcott	Knives, cleaning, machines for	April 29, 1856	XVII.
14960	Ketchum, Samuel C	Hat bodies, machines for sizing	May 27, 1856	III.
14102	Ketchum, William F	Harvesters, grain and grass	Jan. 15, 1856	I.
14961	Ketchum, William F	Mowing machines	May 27, 1856	I.
	Key, Charles H., administrator. (See Bluff, S. F.)			

[illegible]	[illegible]	[illegible]	Dec.	16, 1856	XVII.
14506	Kiefer, Konrad	Chairs, fan rocking	Mar.	25, 1856	XVII.
15851	Kilburn, Edwin, and Artemus and Cheeney	Wood, bending, method of	Oct.	7, 1856	XIV.
14136	Killam, Joseph W.	Sticks to polygonal forms, machine for dressing	Jan.	22, 1856	XIV.
	Kimball, Thompson, *et al.* (See Buck, Joab, assignor.)				
15658	Kimball, W. H., and A. J. French, assignors to themselves and A. H. Noyes.	Bedstead, spring	Sept.	2, 1856	XVII.
14317	Kimball, Wm. M.	Lamps	Feb.	26, 1856	V.
14318	King, Jas. T.	Steam generator, domestic	Feb.	26, 1856	V.
14244	King, Jas. T.	Steam condensers	Feb.	12, 1856	VI.
14818	King, Jas. T.	Washing machines	May	6, 1856	XVII.
15134	King, John C.	Pumps, double-acting, valve for	June	17, 1856	XI.
14103	King, Samuel M.	Shingle machine	Jan.	15, 1856	XIV.
15566	King, Wm. H., assignor to Wm. H. King and Isaac Hyneman.	Sweeping gutters, machine for	Aug.	19, 1856	IX.
14873	Kingsland, Edmund.	Brick machines	May	13, 1856	XV.
16239	Kingsland, Joseph, jr.	Paper pulp, grinding, machinery for	Dec.	16, 1856	III.
16278	Kingsland, Joseph, jr.	Paper pulp engines	Dec.	24, 1856	III.
16316	Kingsland, Joseph, jr.	Paper pulp grinding, process of	Dec.	24, 1856	III.
15852	Kinsey, Israel	Paper making machines, feeding pulp to	Oct.	7, 1856	III.
14401	Kinsman, S. A., and S. Field	Hats, ironing, machinery for	Mar.	11, 1856	III.
14725	Kinyon, Jas. H., and Jas. Hollingsworth	Cotton cleaner	April	22, 1856	III.
15659	Kirby, W. A.	Harvesting machines	Sept.	2, 1856	I.
14694	Kirby, Wm. A.	Harvesters, grain and grass	April	15, 1856	I.
14064	Kirchof, Chas.	Telegraph, electric	April	15, 1856	VIII.
15135	Kirk, Lewis	Brick presses	June	17, 1856	XV.
16241	Klahr, Samuel	Boring machines	Dec.	16, 1856	XIV.
14586	Klein, Ferdinand	Skates	April	1, 1856	XXII.
14286	Klein, Francis I.	Pen-holder, flexible	Feb.	19, 1856	XVIII.
	Klinck, G. (See Sayre & Klinck.)				
14665	Kline, Jas., and Simon V. Kline	Cars, railroad, safety platforms between	April	15, 1856	X.
15660	Knapp, John H.	Pen and pencil case	Sept.	2, 1856	XVIII.
15011	Knauer, Christian	Press, copying	June	3, 1856	XVIII.
15136	Knauer, Christian, assignor to Warwick, Atterbury & Co.	Locks, door	June	17, 1856	II.
16059	Knecht, Rudolph	Ships, etc., method of ventilating	Nov.	11, 1856	VII.
15519	Kneeland, Cyrus F.	Coal hods	Aug.	12, 1856	V.
15611	Knight, Judson	Caster, ball, for trunks and furniture	Aug.	26, 1856	XVII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14614	Knight, Robert T	Envelopes, construction of	April 8, 1856	XVIII.
15185	Knight, Robert T	Envelopes	June 24, 1856	XVIII.
	Knight, Watson & Wooster. (See Watson, Wm. C., assignor.)			
14160	Knowles, Hazard	Mortising tool	Jan. 20, 1856	XIV.
15186	Knowles, Lucius J	Looms	June 24, 1856	III.
16015	Knowles, Lucius J	Looms	Nov. 11, 1856	III.
15887	Knox, Samuel A	Plows	Oct. 14, 1856	I.
15340	Koenig, Julius J	Type, composing and distributing, machine for	July 15, 1856	XVIII.
15853	Krauser, S	Fluids, measuring, method of, while drawing	Oct. 7, 1856	XI.
16060	Kruse, Henry	Wagons	Nov. 11, 1856	X.
15810	Kuhns, B., and M. J. Haines	Planters, seed	Sept. 30, 1856	I.
15520	Kulhmann, F	Compounds, paint, vehicle for	Aug. 12, 1856	IV.
15699	Kulinski, John	Cars, railroad, collision apparatus	Sept. 9, 1856	X.
14161	Kumler, Noah W	Pill-making machine	Jan. 29, 1856	XX.
15078	Kurtzeman, Joseph	Sawing mills, head-blocks of, method of operating	June 10, 1856	XIV.
14565	La Baw, Geo. W	Boat, life	April 1, 1856	VII.
14666	La Baw, Geo. W	Hoisting drums	April 15, 1856	XII.
14843	La Baw, Geo. W., assignor to himself, Joseph Colton, and Theo. Howell.	Boats, life, propellers for	May 6, 1856	VII.
14631	Lacey, E. P	Planters, corn	April 8, 1856	I.
16279	Lacy, Edward W	Hemp brakes	Dec. 23, 1856	III.
16280	Ladd, Jesse	Shoe pegs, machine for pointing	Dec. 23, 1856	XVI.
	Laing & Spencer. (See Emmons, Phineas, assignor.)			
	Lamb, Charles B. (See Gould & Lamb.)			
15661	Lamb, Loomis	Churns	Sept. 2, 1856	I.
14769	Lamb, Salem T	Harvesters, automatic rakes for	April 29, 1856	I.
360	La Mothe, B. J	Cars, railroad	Mar. 18, 1856	X.
15768	Lamson, Daniel	Hoops, notching, machine for	Sept. 23, 1856	XIV.
	Lamson, Nathaniel. (See Ball, Thomas C., assignor.)			

		ting the valves of	May	27, 1856	XI.
15243	Lanergan, Andrew	Pastiles, disinfecting	July	1, 1856	IV.
15341	Langdell, Giles, and Marcus A. Root	Photographic pictures, mode of tinting	July	15, 1856	XVIII.
15427	Langwith, F. R	Clamp for plumbers	July	29, 1856	II.
16092	Lapham, A., assignor to himself and S. Wilkes	Boilers, steam, and kettles combined	Nov.	18, 1856	VI.
15187	Large, Daniel	Boats, ice, arrangement of means attached to	June	24, 1856	VII.
14319	Latrobe, John H. B	Fire-arms, percussion locks for	Feb.	26, 1856	XIX.
14963	Latta, A. B	Valves, safety, for steam engines	May	27, 1856	VI.
15297	Latta, A. B	Carriages, steam, wheel for	July	9, 1856	X.
15244	Lawrens, John	Gun carriage	July	1, 1856	XIX.
14104	Lavender, Wm. R., and Atkins Smith	Steering wheel stopper	Jan.	15, 1856	VII.
15738	Law, Hervey	Paper, cutting, machine for	Sept.	16, 1856	III.
	Lawrence, A., and J. G. Abbott. (See Smith, G., H. Brown, and J. A. Read, assignors.)				
16038	Lawrence, D. M	Shutter fastener	Nov.	4, 1856	II.
15980	Lawrence, George C	Soap mixtures	Oct.	28, 1856	IV.
15242	Lawrence, Henry	Marble-sawing machine	July	1, 1856	XV.
14630	Lawrenson, Peter	Sowing seed broadcast, machines for	April	8, 1856	I.
14875	Lawson, O. G	Blow-pipes	May	13, 1856	V.
16061	Lawson, Robert	Hydrants, waste-valve for	Nov.	11, 1856	XI.
147	Leach, James O.	Looms	July	8, 1856	Add'l impt.
	Learned, Charles. (See Brown, John L., assignor.)				
14458	Leavenworth, Lucius	Churns	Mar.	18, 1856	I.
15012	Leavitt, William D	Sawing-machine	June	3, 1856	XIV.
131	Leeds, L. W., and R. M. Smith	Hydraulic heaters	Feb.	5, 1856	Add'l imp't.
14668	Lefferts, Marshall	Bedsteads, metallic	April	15, 1856	XVII.
14023	Leibee, Daniel	Amalgamator, gold	Jan.	1, 1856	II.
	Leibrant, McDowell & Co. (See Smith, Brown, & Reed, assignors.)				
14964	Leicht, Conrad	Billiard cues	May	27, 1856	XXII.
14365	Le Mat, Alexander	Ships and other vessels, means for increasing the buoyancy of.	Mar.	4, 1856	VII.
15925	Le Mat, Alexander	Fire-arm	Oct.	21, 1856	XIX.
16124	Le Mat, Alexander	Fire-arms	Nov.	25, 1856	XIX.
	Lemon, Thomas D. (See Fravel, Abraham, assignor.)				

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14459	Lempcke, A	Wind-mill, self-regulating	Mar. 18, 1856	XI.
14566	Lent, Vincent D	Springs, spiral, former for	April 1, 1856	II.
14820	Leonard, George	Fire-arms, repeating	May 6, 1856	XIX.
	Leonard, Lemuel M. (See Herrick & Leonard.)			
14486	Leonard, Orville, assignor to O. Leonard and Geo. H. Reynolds.	Engines, steam, cut-off gear for	Mar. 18, 1856	VI.
16282	Letort, James	Door-fasteners	Dec. 23, 1856	II.
14876	Lettington, Horace	Bits, fastening	May 13, 1856	II.
14508	Lewis, Charles H	Cars, railroad, spring platform for	Mar. 25, 1856	X.
14024	Lewis, Charles N	Pump	Jan 1, 1856	XI.
14245	Lewis, R. W	Cans, preserve, sealing	Feb. 12, 1856	XVII.
15811	Lewis, S. J., and W. Alston	Saw-gummers'	Sept. 30, 1856	XIV.
16093	Lewis, Spencer	Bedstead fastenings	Nov. 18, 1856	XVII.
16242	Lewis, Wm. and W. H	Photographic baths	Dec. 16, 1856	XVIII.
15854	Lewis, W. and W. H., assignors to Malonzo J. Drummond	Photographic cameras, plate-holder for	Oct. 7, 1856	XVIII.
14507	Lewy, Benj. M	Chairs, fan rocking	Mar. 25, 1856	XVII.
15633	Liblong, John, assignor to Edward Brown and Jas. R. Case.	Boiling, device for preventing liquids from, over the sides of vessels.	Aug. 26, 1856	V.
15613	Liddle, John	Furnaces, air-heating	Aug. 26, 1856	V.
15888	Ligon, Edwin T	Pumps	Oct. 14, 1856	XI.
16210	Lightfoot, Goodrich	Churns	Dec. 9, 1856	I.
14162	Lincoln, A. L. (See Paige, Lucius, assignor.)			
15266	Lincoln, Albert L., assignor to himself and Chas. M. Foss.	Macaroni sewer	July 1, 1856	XVII.
14629	Lincoln, Jesse	Sowing seed broadcast, machine for	April 8, 1856	I.
14320	Lincoln, William	Painting or varnishing woven wire	Feb. 26, 1856	IV.
15198	Linden, N	Lamps, fountain	June 24, 1856	V.
415	Lindner, Edward	Gun, magazine, repeating and needle	Dec. 23, 1856	Reissue.

	Thomas, assignor.)				
14965	Lindsay, William B	Cotton gins	May	27, 1856	III.
14460	Lippincott, John	Projectiles, percussion	Mar.	18, 1856	XIX.
14896	Lippincott, Joseph M	Locks	May	13, 1856	II.
15489	Lippincott, Joseph	Locks	Aug.	5, 1856	II.
	Little & Swetland. (See Vedder & Sanderson, assignors, and Vedder & Ripley, assignors.)				
14362	Littlefield, Dennis G	Stoves and furnaces for railroad cars and other purposes.	Mar	4, 1856	V.
14299	Livermore, George W., assignor to Livermore Manufacturing Company.	Stave machine	Feb.	19, 1856	XIV.
14162	Lloyd, Daniel	Window shades, stencilling apparatus for	Jan.	29, 1856	XVII.
395	Locher C	Boats, life, folding	Sept.	16, 1856	Reissue.
	Locke, Edward A. (See Quimby, Samuel D., assignor.)				
15403	Lockwood, Asahel, assignor to L. B. Flanders	Planing machine	July	22, 1856	XIV.
15137	Lockwood, N. S., and J. D. Winn	Plows	June	17, 1856	I.
15042	Longley, Servetus	Barrels, &c., rolling and handling, apparatus for	June	3, 1856	XXII.
	Loomis, Timothy H., *et al.* (See Bosworth, Albert, assignor.)				
	Lord & Day. (See Day, Charles, and Alanson D. Lord.)				
15979	Lord, William S	Carriages, perch couplings for	Oct.	28, 1856	X.
339	Loughborough, W. S	Types, composing and setting, machine for	Jan.	8, 1856	Reissue.
16094	Louis, Lafayette	Melodeons	Nov.	18, 1856	XVIII.
14402	Love, Israel S	Harvester cutters	Mar.	11, 1856	I.
15855	Love, Israel S	Harvesters	Oct.	7, 1856	I.
14509	Lowe, N. M. (formerly N. L. Murphy)	Piano-forte action	Mar.	25, 1856	XVIII.
14789	Lowe, Samuel W., assignor to himself and Jacob M. Beck.	Printing, machines for embossing and	April	29, 1856	XVIII.
15428	Lowe, Samuel W., assignor to Samuel Lowe and Wm. F. Scheible.	Printing press, portable	July	30, 1856	XVIII.
14643	Low, William H	Envelopes, machine for making	April	8, 1856	XVIII.
14670	Loyd, William	Stereoscope case	April	15, 1856	XVIII.
15104	Luce, C. O	Seeding machines	June	10, 1856	I.
14874	Lufkin, C. M	Mowing machines	May	13, 1856	I.
14920	Lull, Harvey	Paddle wheels, feathering	May	20, 1856	VII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
16062	Lund, George D	Saws, reciprocating, method of hanging	Nov. 11, 1856	XIV.
14567	Lutz, Stimmel	Spark-arresters	April 1, 1856	V.
14877	Lyford, Zebulon	Chairs, portable	May 13, 1856	XVII.
14510	Lyman, A. S	Cooling and ventilating rooms, &c., method of	Mar. 25, 1856	V.
14669	Lyman, Wm. H	Whip-socket	April 15, 1856	XXII.
15997	Lynahon, D., and C. J. Wing, assignor to D. Lynahon.	Car, railroad, coupling	Oct. 28, 1856	X.
16103	Lyndall, J., assignor to C. Roberts	Grain separaters and conveyers	Nov. 18, 1856	XIII.
15188	Lyon, Benjamin F	Fence, field	June 24, 1856	IX.
15700	Lyon, James W	Screw-cutter	Sept. 9, 1856	II.
15490	Lyon, T. Kenton	Pen-holder	Aug. 5, 1856	XVIII.
14770	Lyon, Wm., & Charles W. Dickinson	Gas metres, dry, construction of	April 29, 1856	V,
14461	Mabury, James B	Stoves	Mar. 18, 1856	V.
14727	Mace, Alonzo M	Lamps, hydrocarbon vapor	April 22, 1856	V.
14196	Macferran, Samuel	Furnaces, hot-air	Feb. 5, 1856	V.
16040	Mackerley, Benjamin	Mill, cider	Nov. 4, 1856	XIII.
15662	Mackintire, James	Ale and beer coolers	Sept. 2, 1856	IV.
15079	Macomber, A. S	Wheelwrights' machinery	June 10, 1856	XIV.
15769	Macomber, D. O	Omnibus	Sept. 23, 1856	X.
14403	Macomber, Horatio N	Blow-pipe, spirit	Mar. 11, 1866	V.
814	Macy, John C	Grate, ornamental, for fire-places	July 9, 1856	Design.
14568	Maffitt, Robert	Motion, reciprocating into rotary, method of converting.	April 1, 1856	XIII.
14940	Magee, John, assignor to John Magee and Wm. J. Towne.	Stoves, ventilating regulators and damper for	May 20, 1856	V.
14511	Mahan, J. W	Bench, carpenters'	Mar. 25, 1856	XIV.
14569	Mahan, J. W	Bench, mitreing	April 1, 1856	XIV.
15739	Mahan, J. W	Bench, carpenters'	Sept. 16, 1856	XIV.
16283	Maher, Wm	Crane, blacksmiths'	Dec. 23, 1856	XII.
15138	Mallard, L. John, and Wm. S. Baker	Cotton gins, roller of, feeder for	June 17, 1856	III.
15139	Mallett, Samuel, and Augustus B. Smith	Teeth, artificial, adjustable punches for setting	June 17, 1856	XX.
14026	Mallory, O. E	Eave-troughs, machine for making	Jan. 1, 1856	IX

15013	Mann, Henry F	Harvester-frames	June 3, 1856	I.
14404	Mann, Jacob J	Mowing-machines	Mar. 11, 1856	I.
15044	Mann, Jacob J. & H. F.	Reaping-machines	June 3, 1856	I.
	Mann, Torrance & Co. (See Vedder, N. S., assignor.)			
14138	Manning, Jos. S	Mowing-machines	Jan. 22, 1856	I.
15014	Manning, W. N	Melodeons	June 3, 1856	XVIII.
14026	Manny, John H	Harvesters	Jan. 1, 1856	I.
14148	Manny, John H.	Harvesters, grain and grass	Jan. 22, 1856	I.
14149	Manny, John H.	Harvester cutter-bars	Jan. 22, 1856	I.
354	Manny, John H., assignor to P. H. Watson	Harvesting-machines	Feb. 19, 1856	Reissue.
14726	Manny, Pells	Plow, sub-soil	April 22, 1856	I.
15927	Manny, P	Harvesters	Oct. 21, 1856	I.
15926	Manny, P	Harvesters, sickles for	Oct. 21, 1856	I.
16016	Manny, Pells	Rakes for reapers, automatic	Nov. 11, 1856	I.
14570	Marable, Thomas E.	Seeds or grain in the field, machines for gathering	April 1, 1856	I.
	Marble, Jarvis C. (See Holmes, George W., assignor.)			
14027	Markillie, Thomas R	Lath sawing machines, bed for	Jan. 1, 1856	XIV.
15703	Marland, John	Delaines, manufacturing, process of	Sept. 9, 1856	III.
14287	Marquiss, A. E. and C., and Chas. Emerson	Plows, draining, mole for	Feb. 9, 1856	I.
14128	Marsh, David, assignor to T. B. Stout, J. A. Cody, and David Marsh.	Mill-stones, hanging	Jan. 15, 1856	XIII.
14028	Marsh, Joseph	Sash-lock	Jan. 1, 1856	II.
14921	Marsh, Nathan B	Water meter	May 20, 1856	XI.
14042	Marsh, Philo, assignor to Marsh & Howland	Oils, treating	Jan. 1, 1856	IV.
15614	Marshall, A. R.	Gas-burners, automatic attachment to	Aug. 26, 1856	V.
	Marshall & Butterfield. (See Butterfield, J. S., and S. Marshall.)			
16063	Martin, Jas. W	Umbrellas, preparing ratan for	Nov. 11, 1856	XXI.
14939	Martin, Jas. W., assignor to himself and Lewis Rotherwell.	Weighing-cart	May 20, 1856	XII.
15140	Martin, Jos. L	Odometers and counting machines	June 17, 1856	VIII.
15616	Martratt, Cornelius	Planters, hand, corn	Aug. 26, 1856	I.
14671	Martz, George	Hoisting coal, apparatus for	April 15, 1856	XII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14321	Martz, Nathan	Rakes, horse	Feb. 26, 1856	I.
	Marvel & Keach. (See Sargent & Keach, assignors.)			
134	Mascher, John F	Daguerreotype cases	Feb. 19, 1856	XVIII.
	Mason & Hamlin. (See Hamlin, Emmons, assignor.)			
	Mason, J., and N. C. Sherman. (See Sherman & Mason.)			
15891	Mason, John L	Porte-monnaies	Oct. 14, 1856	XVIII.
15379	Mason, Joshua	Metal planers, cutter stock for	July 22, 1856	II.
16284	Mason, William	Fluid meters, device for operating by hand	Dec. 23, 1856	XI.
	Massey & Stratton. (See Allen, John F., assignor.)			
14771	Mathers, E	Corn shellers	April 29, 1856	I.
14363	Mathers, Ebenezer	Planes, bench	Mar. 4, 1856	XIV.
14462	Mathers, Ebenezer	Trees, felling, machine for	Mar. 18, 1856	I.
356	Matthew, David	Spark and gas-consumers	Feb. 26, 1856	Reissue.
357	Matthew, David	Spark-arresters	Mar. 4, 1856	Reissue.
15663	Matthew, David	Engines, steam, condensers for	Sept. 2, 1856	VI.
14730	Mauck, R. C., and W. T. McGahey	Harvesters, corn	April 22, 1856	I.
14616	Mawrer, Wm	Locks	April 8, 1856	II.
15701	Maxson, Wm. P	Harvester, grain and grass	Sept. 9, 1856	I.
	Maxwell & Merrill. (See Merrill, Ira, assignor.)			
16035	Maycock, Thos., assignor to himself and Henry Rice.	Tile, drain, machine	Nov. 4, 1856	XV.
15141	Maynard, Edward	Cartridges	June 17, 1856	XIX.
	McArthur, A. H., & Co. (See Gibbs, Samuel W., assignor.)			
15380	McBride, Matthew J	Stone or marble, sawing, machine for	July 22, 1856	XV.
15043	McChesney, John	Washing machines	June 3, 1856	XVII.
	McClintock, J. S., and George Felters. (See Felters and McClintock.)			
15142	McComb, D	Bands, non-elastic, for bales of cotton or other fibrous materials.	June 17, 1856	XII.

15664	McCraken, Joseph	Process of stiffening hat bodies	Sept.	2, 1856	
15929	McCraken, Joseph	Hat bodies, sizing	Oct.	21, 1856	IV.
14879	McCraken, W. J	Trunks, wardrobe	May	13, 1856	III.
14672	McCreary, B. F	Settees, reversible, backs of, double acting catch for	April	15, 1856	XVI.
14463	McCrone, John	Winding frames, cone tubes for	Mar.	18, 1856	XVII.
14322	McCurdy, James S	Binding guides	Feb.	26, 1856	III.
15665	McCully, John F	Glass, black bottle, manufacture of	Sept.	2, 1856	III.
379	McCurdy, R. A. L., assignor to David G. Olmstead.	Gins, cotton	July	15, 1856	XV.
15771	McDonough, Thomas	Engine, air	Sept.	23, 1856	Reissue.
	McDowell, Leibrant & Co. (See Smith, Brown & Read, assignors.)				XI.
	McGahey, W. T. (See Mauck & McGahey.)				
15080	McGlew, Patrick	Die stock cutting screws	June	10, 1856	II.
14105	McGrath, Horatio	Bits for boring felloes and tenoning spokes	Jan.	15, 1856	XIV.
15812	McIlroy, G. R	Fence, portable	Sept.	30, 1856	IX.
14772	McInnes, John	Printing woollen and other fabrics, machine for	April	29, 1856	XVIII
14673	McIntosh, W. J	Rice, reaping, implement for	April	15, 1856	I.
16243	McIntyre, Joseph T	Gate, railroad, for cattle guard	Dec.	16, 1856	IX.
16095	McKeage, B	Stave jointer	Nov.	18, 1856	XIV.
16017	McLachlan, William	Burglars' alarm	Nov.	11, 1856	XXII.
	McLaren, Bryant, & Anderson. (See Anderson, McLaren & Bryant.)				
	McLaughlin & Dougherty. (See Dougherty & McLaughlin.)				
14364	McLaughlin, George T	Car seats, railroad	Mar.	4, 1856	X.
15568	McLean, Sherman	Cupping instruments	Aug.	19, 1856	XX.
14695	McLellan, James	Bars, railroad, repairing	April	15, 1856	II.
14571	McManus, Philip	Wrenches	April	1, 1856	II
15245	McMullen, John	Netting machines	July	1, 1856	III.
14464	McMullin, R	Process for making elastic rubber cloth	Mar.	18, 1856	IV.
15429	McMurtry, John	Stave machine	July	29, 1856	XIV.
14108	McNab, James, and Adam Carr	Valves, stop, steam	Jan.	15, 1856	VI.
417	McNair, John G	Carpets, manufacturing	Dec.	23, 1856	Reissue.
16285	McNary, Wm. H	Hosiery, manufacture of	Dec.	23, 1856	Reissue.
14247	McPherson, John L., and Jacob O. Joyce	Pumps, diaphragm	Feb.	12, 1856	XI.
15928	McPhetridge, C. A	Spike machine	Oct.	21, 1856	II.
16096	McPhetridge, C. A	Cotton gins	Nov.	18, 1856	III.
16097	McPhetridge, C. A	Harvesters, grain binder for	Nov.	18, 1856	I.
16211	McPhetridge, C. A	Candle-dipping machine	Dec.	9, 1856	IV.

Alphabetical List of Patentees—Continued.

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	Mason & Hamlin. (See Hamlin, Emmons, assignor.)			
	Mason, J., and N. C. Sherman. (See Sherman & Mason.)			
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16284	Mason, William	Fluid meters, device for operating by hand	Dec. 23, 1856	XI.
	Massey & Stratton. (See Allen, John F., assignor.)			
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14363	Mathers, Ebenezer	Planes, bench	Mar. 4, 1856	XIV.
14462	Mathers, Ebenezer	Trees, felling, machine for	Mar. 18, 1856	I.
356	Matthew, David	Spark and gas-consumers	Feb. 26, 1856	Reissue.
357	Matthew, David	Spark-arresters	Mar. 4, 1856	Reissue.
15663	Matthew, David	Engines, steam, condensers for	Sept. 2, 1856	VI.
14730	Mauck, R. C., and W. T. McGahey	Harvesters, corn	April 22, 1856	I.
14616	Mawrer, Wm	Locks	April 8, 1856	II.
15701	Maxson, Wm. P	Harvester, grain and grass	Sept. 9, 1856	I.
	Maxwell & Merrill. (See Merrill, Ira, assignor.)			
16035	Maycock, Thos., assignor to himself and Henry Rice.	Tile, drain, machine	Nov. 4, 1856	XV.
15141	Maynard, Edward	Cartridges	June 17, 1856	XIX.
	McArthur, A. H., & Co. (See Gibbs, Samuel W., assignor.)			
15380	McBride, Matthew J	Stone or marble, sawing, machine for	July 22, 1856	XV.
15043	McChesney, John	Washing machines	June 3, 1856	XVII.
	McClintock, J. S., and George Felters. (See Felters and McClintock.)			
15142	McComb, D	Bands, non-elastic, for bales of cotton or other fibrous materials.	June 17, 1856	XII.

15664	McCraken, Joseph	Process of stiffening hat bodies	Sept.	2, 1856	
15929	McCraken, Joseph	Hat bodies, sizing	Oct.	21, 1856	IV.
14879	McCraken, W. J	Trunks, wardrobe	May	13, 1856	III.
14672	McCreary, B. F	Settees, reversible, backs of, double acting catch for	April	15, 1856	XVI.
14463	McCrone, John	Winding frames, cone tubes for	Mar.	18, 1856	XVII.
14322	McCurdy, James S	Binding guides	Feb.	26, 1856	III.
15665	McCully, John F	Glass, black bottle, manufacture of	Sept.	2, 1856	III.
379	McCurdy, R. A. L., assignor to David G. Olmstead.	Gins, cotton	July	15, 1856	XV.
15771	McDonough, Thomas	Engine, air	Sept.	23, 1856	Reissue.
	McDowell, Leibrant & Co. (See Smith, Brown & Read, assignors.)				XI.
	McGahey, W. T. (See Mauck & McGahey.)				
15080	McGlew, Patrick	Die stock cutting screws	June	10, 1856	II.
14105	McGrath, Horatio	Bits for boring felloes and tenoning spokes	Jan.	15, 1856	XIV.
15812	McIlroy, G. R	Fence, portable	Sept.	30, 1856	IX.
14772	McInnes, John	Printing woollen and other fabrics, machine for	April	29, 1856	XVIII
14673	McIntosh, W. J	Rice, reaping, implement for	April	15, 1856	I.
16243	McIntyre, Joseph T	Gate, railroad, for cattle guard	Dec.	16, 1856	IX.
16095	McKeage, B	Stave jointer	Nov.	18, 1856	XIV.
16017	McLachlan, William	Burglars' alarm	Nov.	11, 1856	XXII.
	McLaren, Bryant, & Anderson. (See Anderson, McLaren & Bryant.)				
	McLaughlin & Dougherty. (See Dougherty & McLaughlin.)				
14364	McLaughlin, George T	Car seats, railroad	Mar.	4, 1856	X.
15568	McLean, Sherman	Cupping instruments	Aug.	19, 1856	XX.
14695	McLellan, James	Bars, railroad, repairing	April	15, 1856	II.
14571	McManus, Philip	Wrenches	April	1, 1856	II
15245	McMullen, John	Netting machines	July	1, 1856	III.
14464	McMullin, R	Process for making elastic rubber cloth	Mar.	18, 1856	IV.
15429	McMurtry, John	Stave machine	July	29, 1856	XIV.
14108	McNab, James, and Adam Carr	Valves, stop, steam	Jan.	15, 1856	VI.
417	McNair, John G	Carpets, manufacturing	Dec.	23, 1856	Reissue.
16285	McNary, Wm. H	Hosiery, manufacture of	Dec.	23, 1856	Reissue.
14247	McPherson, John L., and Jacob O. Joyce	Pumps, diaphragm	Feb.	12, 1856	XI.
15928	McPhetridge, C. A	Spike machine	Oct.	21, 1856	II.
16096	McPhetridge, C. A	Cotton gins	Nov.	18, 1856	III.
16097	McPhetridge, C. A	Harvesters, grain binder for	Nov.	18, 1856	I.
16211	McPhetridge, C. A	Candle-dipping machine	Dec.	9, 1856	IV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15106	Meacham, George A	Planters, seed	June 10, 1856	I.
14967	Mead, Wm. W. H	Engines, &c., steam, instantaneous governors for	May 27, 1856	VI.
14139	Medcalfe, W. H	Cars, railroad, ventilating	Jan. 22, 1856	X.
14288	Mell, James B	Plows	Feb. 19, 1856	I.
15930	Mell, James B	Cotton-gins	Oct. 21, 1856	III.
	Melville, John G. and Wm	Looms	Jan. 21, 1856	Disclaimer.
14199	Mendenhall, S. C	Bolts, flour	Feb. 5, 1856	XIII.
15455	Mendenhall, S. C., and J. Conner	Bolts, flour	July 29, 1856	XIII.
	Merklein, G. H., *et al.* (See Senseny, Jeremiah S., assignor.)			
	Merklin, Geo. H., *et al.* (See Floyd, Thomas, assignor.)			
	Merrill, Benj. F., Thomas Phillips, and J. F. Willey. (See Willey, John F., assignor)			
14755	Merrill, Ira, assignor to Ira Merrill and Arthur Maxwell.	Tunnelling and quarrying, machine for	Feb. 22, 1856	IX.
14077	Merrill, James H	Fire-arms	Jan. 8, 1856	XIX.
	Merrill, Joshua, and S. Downer. (See Downer & Merrill.)			
	Merriman & Hotchkiss Manufacturing Company. (See Cook, James C., assignor.)			
14106	Merriman, J. A	Mortising-machine	Jan 15, 1856	XIV.
15430	Mihan, Patrick	Faucets, method of inserting into fluids under pressure.	July 29, 1856	XI.
16246	Mihan, Patrick	Chimney-cowls	Dec. 16, 1856	V.
15381	Miles, James B	Cotton-gins	July 22, 1856	III.
15615	Miles, Purches	Curtain-fixtures	Aug. 26, 1856	XVII.
15431	Miller, A. C	Planters, hand seed	July 29, 1856	I.
14922	Miller, Augustin	Engine, hydraulic	May 20, 1856	VI.

	Miller, J. C., and C. A. Fowler. (See Burk, Thomas D., assignor.)				
14923	Miller, James M	Engines, steam, surface condensers for	May	20, 1856	VI.
14512	Miller, Joseph	Streets, sweeping, machine for	Mar.	25, 1856	IX.
	Miller, Lewis, and Cornelius Aultman. (See Aultman & Miller, assignors to Ball, &c.)				
14878	Miller, S. B., and E. W. Whitehead	Metal, sheet-working	May	13, 1856	II.
15246	Miller, W. K	Steam-gauge	July	1, 1856	VI.
	Mills, Abner, and Uel West. (See West & Mills.)				
15299	Mills, C. A	Stone sawing-mills	July	9, 1856	XV.
15931	Mills, C. A	Chairs, head-rests for	Oct.	21, 1856	XVII.
	Mills & Harvey. (See Harvey, J. L., and C. A. Mills)				
	Mills, James H., and Wm. M. Booth. (See Booth & Mills.)				
14198	Mills, S. S., and M. Bissell	Scales, weighing	Feb.	5, 1856	XII.
14696	Minard, O. W	Kettles, brass, making	April	15, 1856	II.
15247	Minard, O. W	Kettle, brass, machine	July	1, 1856	II.
15772	Minard, O. W	Kettles, brass, making	Sept.	23, 1856	II.
14985	Miner, H. H., M. Stevens, and Wm. H. Saunders.	Coupling for vehicles	May	27, 1856	X.
15298	Minifie, James	Vessels, life and property-saving, arrangement of means for balancing and propelling.	July	8, 1856	VII.
	Mitchell, Bailey, & Co. (See Vance, S. B. H., assignor.)				
	Mitchell, Bailey, & Co. (See Vance, Samuel B. H., assignor.)				
	Mitchell, Bailey, & Co. (See Vance, Samuel B. H., assignor.)				
15702	Mitchell, Thomas	Brushes, wooden part of, machine for manufacturing the.	Sept.	9, 1856	XVII.
14248	Moeller, Christopher	Lamps, argand, wick-holders for	Feb.	12, 1856	V.
14323	Moen, A. R	Cellars, walls and floors of, mode of constructing	Feb.	26, 1856	IX.
367	Moen, Augustus R	Cellars, walls and floors of, mode of constructing	April	8, 1856	Reissue.
14163	Moestue, Adolph C	Mastic for covering walls	Jan.	9, 1856	IV.
14140	Molliere, Jean Pierre	Boots and shoes, soles and heels of, machine for hammering leather for the.	Jan.	22, 1856	XVI.
14513	Monroe, Edwin P	Locks, gun	Mar.	25, 1856	XIX.
16018	Monroe, James F	Lubricator	Nov.	4, 1856	IV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Monroe & Hood. (See Hood, B. L., and E. P. Monroe)			
14197	Montgomery, Richard	Carriage springs	Feb. 5, 1856	X.
15249	Moon, Ansel	Bedstead	July 1, 1856	XVII.
14968	Mooney, H. L., and W. B. Carter	Hubs, boring tool for	May 27, 1856	XIV.
15190	Mooney, John	Metals, tool for cutting	June 24, 1856	II.
15770	Moor, Robert	Hubs of wheels, securing spokes in the	Sept. 23, 1856	X.
15594	Moore, Charles	Process of preparing linseed, &c., for pressing, in extracting oil.	Aug. 19, 1856	IV.
16256	Moore, Charles, assignor to himself, William G. Sheldon, and Lorenzo B. Chandler.	Paper, cutting and folding, machine for	Dec. 16, 1856	XVIII.
16212	Moore, Edwin	Planters, seed	Dec. 9, 1856	I.
14107	Moore, F. H	Coal hole covers, safety	Jan. 15, 1856	IX.
14200	Moore, George R	Pokers, fire	Feb. 5, 1856	V.
15382	Moore, John	Polishing machine	July 22, 1856	XIV.
15433	Moore, John	Planters, potato	July 29, 1856	I.
15932	Moore, John	Screw machine	Oct. 21, 1856	II.
15890	Moore, John H	Saws, reciprocating method of hanging	Oct. 14, 1856	XIV.
16134	Moore, Joseph A., and Asahel H. Patch	Harvesters: finger bar, arrangement for	Nov. 25, 1856	I.
15569	Moore, Larkin L	Harvesting machine	Aug. 19, 1856	I.
14201	Morandi, Francis	Lanterns	Feb. 5, 1856	V.
	Morey, D. C., and S. A. Garrison. (See Garrison & Morey.)			
15432	Morfit, Campbell	Soap boiling apparatus	July 29, 1856	IV.
14270	Morgan, Charles, assignor to Samuel Emlen	Planters, potato	Feb. 12, 1856	I.
14465	Morgan, Elijah	Planters, seed	Mar. 18, 1856	I.
	Morgan, Eustis P. (See Thompson, William H., and E. P. Morgan.			
	Morgan & Seymour. (See Seymour & Pease, assignors.)			
	Morgan & Seymour. (See Seymour & Pease, assignors)			

	Morgan & Seymour. (See Seymour, William H., assignor.)			
16147	Morley, James H	Chairs, railroad	Dec. 2, 1856	X.
15143	Morrill, Oscar F	Smoothing-irons	June 17, 1856	XVII.
16065	Morrill, Samuel	Clothes dryers	Nov. 11, 1856	XVII.
	Morris, D. A. (See Gisainger & Kelberg, assignors.)			
15300	Morris, Ephraim	Coal, raising and dumping, apparatus for	July 9, 1856	IX.
14405	Morris, John C	Wood, method of bending	Mar. 11, 1856	XIV.
	Morrison, Cox, Warren, & Co. (See Pierce & Dulley, assignors.)			
	Morrison, Cox, Warren, & Co. (See Pierce & Burnam, assignors.)			
	Morrison, Cox, Warren, & Co. (See Burnam, Sanford, assignor.)			
15105	Morrison, Ebenezer	Corn-shellers	June 10, 1856	I.
	Morrison, E. R., and A. Wyckoff, assignor to A. Wyckoff. (See Wyckoff & Morrison.)			
	Morrison, Fuller, & Warren. (See Pierce & Dulley, assignors.)			
	Morrison, Fuller, & Warren. (See Pierce & Dulley, assignors.)			
	Morrison, Fuller, & Warren. (See Dulley, James J.)			
14644	Morrison, Robert J	Harvesting machines	Dec. 16, 1856	I.
	Morrow, John, and Andrew Hartupee. (See Hartupee & Morrow.)			
	Morrow, John, J. P. Haigh, and A. Hartupee. (See Kenyon, William, assignor.)			
15813	Morrow, S. G. L	Excavators	Sept. 30, 1856	IX.
14880	Morse, C. B	Planing machine	May 13, 1856	XIV.
15996	Morse, G. W	Cartridges	Oct. 28, 1856	XIX.
15995	Morse, G. W	Fire-arms, breech-loading	Oct. 28, 1856	XIX.
15248	Moses, Oren	Meat, mincing, machine for	July 1, 1856	XVII.
15342	Moses, Oren	Straw-cutter	July 15, 1856	I.
	Mott, J. L., Iron Works. (See Demarest, John, assignor.)			
15383	Mott, John M., jr	Marble sawing machine	July 22, 1856	XV.
14773	Moulton, Elisha P	Door-fasteners	April 29, 1856	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Monroe & Hood. (See Hood, B. L., and E. P. Monroe)			
14197	Montgomery, Richard	Carriage springs	Feb. 5, 1856	X.
15249	Moon, Ansel	Bedstead	July 1, 1856	XVII.
14968	Mooney, H. L., and W. B. Carter	Hubs, boring tool for	May 27, 1856	XIV.
15190	Mooney, John	Metals, tool for cutting	June 24, 1856	II.
15770	Moor, Robert	Hubs of wheels, securing spokes in the	Sept. 23, 1856	X.
15594	Moore, Charles	Process of preparing linseed, &c., for pressing, in extracting oil.	Aug. 19, 1856	IV.
16256	Moore, Charles, assignor to himself, William G. Sheldon, and Lorenzo B. Chandler.	Paper, cutting and folding, machine for	Dec. 16, 1856	XVIII.
16212	Moore, Edwin	Planters, seed	Dec. 9, 1856	I.
14107	Moore, F. H	Coal hole covers, safety	Jan. 15, 1856	IX.
14200	Moore, George R	Pokers, fire	Feb. 5, 1856	V.
15382	Moore, John	Polishing machine	July 22, 1856	XIV.
15433	Moore, John	Planters, potato	July 29, 1856	I.
15932	Moore, John	Screw machine	Oct. 21, 1856	II.
15890	Moore, John H	Saws, reciprocating method of hanging	Oct. 14, 1856	XIV.
16134	Moore, Joseph A., and Asahel H. Patch	Harvesters: finger bar, arrangement for	Nov. 25, 1856	I.
15569	Moore, Larkin L	Harvesting machine	Aug. 19, 1856	I.
14201	Morandi, Francis	Lanterns	Feb. 5, 1856	V.
	Morey, D. C., and S. A. Garrison. (See Garrison & Morey.)			
15432	Morfit, Campbell	Soap boiling apparatus	July 29, 1856	IV.
14270	Morgan, Charles, assignor to Samuel Emlen	Planters, potato	Feb. 12, 1856	I.
14465	Morgan, Elijah	Planters, seed	Mar. 18, 1856	I.
	Morgan, Eustis P. (See Thompson, William H, and E. P. Morgan.			
	Morgan & Seymour. (See Seymour & Pease, assignors.)			
	Morgan & Seymour. (See Seymour & Pease, assignors)			

	Morgan & Seymour. (See Seymour, William H., assignor.)			
16147	Morley, James H	Chairs, railroad	Dec. 2, 1856	X.
15143	Morrill, Oscar F	Smoothing-irons	June 17, 1856	XVII.
16065	Morrill, Samuel	Clothes dryers	Nov. 11, 1856	XVII.
	Morris, D. A. (See Gissinger & Kelberg, assignors.)			
15300	Morris, Ephraim	Coal, raising and dumping, apparatus for	July 9, 1856	IX.
14405	Morris, John C	Wood, method of bending	Mar. 11, 1856	XIV.
	Morrison, Cox, Warren, & Co. (See Pierce & Dulley, assignors.)			
	Morrison, Cox, Warren, & Co. (See Pierce & Burnam, assignors.)			
	Morrison, Cox, Warren, & Co. (See Burnam, Sanford, assignor.)			
15105	Morrison, Ebenezer	Corn-shellers	June 10, 1856	I.
	Morrison, E. R., and A. Wyckoff, assignor to A. Wyckoff. (See Wyckoff & Morrison.)			
	Morrison, Fuller, & Warren. (See Pierce & Dulley, assignors.)			
	Morrison, Fuller, & Warren. (See Pierce & Dulley, assignors.)			
	Morrison, Fuller, & Warren. (See Dulley, James J.)			
14644	Morrison, Robert J	Harvesting machines	Dec. 16, 1856	I.
	Morrow, John, and Andrew Hartupee. (See Hartupee & Morrow.)			
	Morrow, John, J. P. Haigh, and A. Hartupee. (See Kenyon, William, assignor.)			
15813	Morrow, S. G. L	Excavators	Sept. 30, 1856	IX.
14880	Morse, C. B	Planing machine	May 13, 1856	XIV.
15996	Morse, G. W	Cartridges	Oct. 28, 1856	XIX.
15995	Morse, G. W	Fire-arms, breech-loading	Oct. 28, 1856	XIX.
15248	Moses, Oren	Meat, mincing, machine for	July 1, 1856	XVII.
15342	Moses, Oren	Straw-cutter	July 15, 1856	I.
	Mott, J. L., Iron Works. (See Demarest, John, assignor.)			
15383	Mott, John M., jr	Marble sawing machine	July 22, 1856	XV.
14773	Moulton, Elisha P	Door-fasteners	April 29, 1856	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15982	Moulton, Joseph C	Hook, suspension, combined, and insect insulator	Oct. 28, 1856	XVII.
16245	Moultrie, William	Press for printing hat linings	Dec. 16, 1856	XVIII.
	Mowe, A. M., and E. K. Haynes. (See Haynes, E. K., assignor.)			
15889	Mozart, Don J	Fans, automatic, escapement movement for	Oct. 14, 1856	XXII.
847	Muller, Charles	Statuettes of Burton as Captain Cuttle	Oct. 21, 1856	Design.
771	Muller, Nicholas	Clock-case fronts	April 1, 1856	Design.
786	Muller, Nicholas	Clock-case fronts	April 29, 1856	Design.
787	Muller, Nicholas	Clock-case fronts	April 29, 1856	Design.
812	Muller, Nicholas	Clock-case fronts, the base of	July 1, 1856	Design.
813	Muller, Nicholas	Clock-case fronts	July 1, 1856	Design.
16247	Mulley, Jeremiah W	Mowing and reaping machines	Dec. 16, 1856	I.
15045	Mumford, Josiah	Last-holders, revolving	June 3, 1856	XIV.
15981	Mumford, Josiah, and John W. Wilson	Washing machines	Oct. 28, 1856	XVII.
15384	Monroe, A	Water-wheel, reacting	July 22, 1856	XI.
15491	Munson, David	Lightning rods	Aug. 5, 1856	VIII.
15169	Murdoch, Richard	Carriages, running gear of	June 24, 1856	X.
16066	Murphey, E. M	Respirator, medical	Nov. 11, 1856	XX.
	Murphey, N. L. (See Lowe, N. M.)			
14064	Musgrave, H. B	Stoves, gas cooking	Jan. 8, 1856	V.
16184	Mussehl, William	Potato-diggers	Dec. 9, 1856	I.
15434	Myers, James, jr	Coal scuttles	July 29, 1856	IX.
15015	Myers, Robert	Marble sawing machine	June 3, 1856	XV.
16213	Nason, Jos	Tubes, connecting	Dec. 9, 1856	II.
14822	Neal, James	Gas-burners	May 6, 1856	XV.
14029	Neal, James, and Charles W. Emery	Pump	Jan. 1, 1856	XI.
14632	Neckerman, Michael	Lathes, chuck for	April 8, 1856	XIV.
	Neff, Wm. and P., jr. (See Smith, H. L., assignor.)			
14824	Neisch, Robert	Stone, artificial, preparing	May 6, 1856	XV.
16248	Nelson, Thomas	Weaving shade cord, machinery for	Dec. 16, 1856	III.

	ded one-half, and Nevin & Curtis, by J. F. Farrar, to Demascus Manufacturing Co.			
14677	Newbrough, Wm	Churns	April 15, 1856	I.
15740	Newbury, A. and B	Printing-press	Sept. 16, 1856	XVIII.
14406	Newbury, F	Fire-arms, revolving	Mar. 11, 1856	XIX.
14774	Newbury, Frederick	Fire-arms	April 29, 1856	XIX.
ℰ15521	Newbury, Frederick D., assignor to Richard Varick De Witt, jr.	Fire-arms	Aug. 12, 1856	XIX.
152	Newbury, Frederick D., assignor to Richard Varick De Witt.	Fire arms	Sept. 16, 1856	Add'l imp't.
15706	Newell, John L	Tooth-plates, by the electrotype process, casting artificial.	Sept. 9, 1856	XX.
	New England Screw Company. (See Whipple, Cullen, assignor.)			
	New England Screw Company (See Whipple, Cullen, assignor.)			
	New England Screw Company. (See Whipple, Cullen, assignor.)			
14675	Newman, M., 2d	Lock, hasp	April 15, 1856	II.
14271	Newsham, Henry	Caldrons	Feb. 12, 1856	V.
145	Newton, Abner N	Fire-arms, breech-loading	June 17, 1856	Add'l imp't.
15522	Newton, Abner N	Fire-arms	Aug. 12, 1856	XIX.
157	Newton, Abner N	Fire-arms, breech-loading	Dec. 23, 1856	Add'l imp't.
14249	Newton, Elisha P	Wrench	Feb. 12, 1856	II.
14823	Nickelson, Samuel	Marble sawing, machines for, in kerfs of varying angles.	May 6, 1856	XV.
15773	Nippes, A. S	Saws, grinding, machine for	May 23, 1856	XIV.
15704	Nixon, Christopher N	Ships' rudders, hanging	Sept. 9, 1856	VII.
15705	Noette, F	Wire, cutting and drawing	Sept. 9, 1856	II.
	Noll & Haas. (See Haas, Christian, and John C. Noll.)			
15893	Norcross, Samuel C	Saw-mill pitmen, adjustable stirrup for	Oct. 14, 1856	XIV.
	North, Chase, & North. (See Vedder & Sanderson, assignors)			
	North, Chase, & North. (See Gibbs, S. W , assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15982	Moulton, Joseph C	Hook, suspension, combined, and insect insulator	Oct. 28, 1856	XVII.
16245	Moultrie, William	Press for printing hat linings	Dec. 16, 1856	XVIII.
	Mowe, A. M., and E. K. Haynes. (See Haynes, E. K., assignor.)			
15889	Mozart, Don J	Fans, automatic, escapement movement for	Oct. 14, 1856	XXII.
847	Muller, Charles	Statuettes of Burton as Captain Cuttle	Oct. 21, 1856	Design.
771	Muller, Nicholas	Clock-case fronts	April 1, 1856	Design.
786	Muller, Nicholas	Clock-case fronts	April 29, 1856	Design.
787	Muller, Nicholas	Clock-case fronts	April 29, 1856	Design.
812	Muller, Nicholas	Clock-case fronts, the base of	July 1, 1856	Design.
813	Muller, Nicholas	Clock-case fronts	July 1, 1856	Design.
16247	Mulley, Jeremiah W	Mowing and reaping machines	Dec. 16, 1856	I.
15045	Mumford, Josiah	Last-holders, revolving	June 3, 1856	XIV.
15981	Mumford, Josiah, and John W. Wilson	Washing machines	Oct. 28, 1856	XVII.
15584	Monroe, A	Water-wheel, reacting	July 22, 1856	XI.
15491	Munson, David	Lightning rods	Aug. 5, 1856	VIII.
15189	Murdoch, Richard	Carriages, running gear of	June 24, 1856	X.
16066	Murphey, E. M	Respirator, medical	Nov. 11, 1856	XX.
	Murphey, N. L. (See Lowe, N. M.)			
14064	Musgrave, H. B	Stoves, gas cooking	Jan. 8, 1856	V.
16184	Mussehl, William	Potato-diggers	Dec. 9, 1856	I.
15434	Myers, James, jr	Coal scuttles	July 29, 1856	IX.
15915	Myers, Robert	Marble sawing machine	June 3, 1856	XV.
16213	Nason, Jos	Tubes, connecting	Dec. 9, 1856	II.
14822	Neal, James	Gas-burners	May 6, 1856	XV.
14029	Neal, James, and Charles W. Emery	Pump	Jan. 1, 1856	XI.
14632	Neckerman, Michael	Lathes, chuck for	April 8, 1856	XIV.
	Neff, Wm. and P., jr. (See Smith, H. L., assignor.)			
14824	Neisch, Robert	Stone, artificial, preparing	May 6, 1856	XV.
16248	Nelson, Thomas	Weaving shade cord, machinery for	Dec. 16, 1856	III.
15435	Nesmith, John	Knitting machines	July 29, 1856	III.
14169	Nesmith, R. D	Mill stones, machines for dressing	Jan. 15, 1856	XIII

	ded one-half, and Nevin & Curtis, by J. F. Farrar, to Demascus Manufacturing Co.			
14677	Newbrough, Wm	Churns	April 15, 1856	I.
15740	Newbury, A. and B	Printing-press	Sept. 16, 1856	XVIII.
14406	Newbury, F	Fire-arms, revolving	Mar. 11, 1856	XIX.
14774	Newbury, Frederick	Fire-arms	April 29, 1856	XIX.
℔15521	Newbury, Frederick D., assignor to Richard Varick De Witt, jr.	Fire-arms	Aug. 12, 1856	XIX.
152	Newbury, Frederick D., assignor to Richard Varick De Witt.	Fire-arms	Sept. 16, 1856	Add'l imp't.
15706	Newell, John L	Tooth-plates, by the electrotype process, casting artificial.	Sept. 9, 1856	XX.
	New England Screw Company. (See Whipple, Cullen, assignor.)			
	New England Screw Company (See Whipple, Cullen, assignor.)			
	New England Screw Company. (See Whipple, Cullen, assignor.)			
14675	Newman, M., 2d	Lock, hasp	April 15, 1856	II.
14271	Newsham, Henry	Caldrons	Feb. 12, 1856	V.
145	Newton, Abner N	Fire-arms, breech-loading	June 17, 1856	Add'l imp't.
15522	Newton, Abner N	Fire-arms	Aug. 12, 1856	XIX.
157	Newton, Abner N	Fire-arms, breech-loading	Dec. 23, 1856	Add'l imp't.
14249	Newton, Elisha P	Wrench	Feb. 12, 1856	II.
14823	Nickelson, Samuel	Marble sawing, machines for, in kerfs of varying angles.	May 6, 1856	XV.
15773	Nippes, A. S	Saws, grinding, machine for	May 23, 1856	XIV.
15704	Nixon, Christopher N	Ships' rudders, hanging	Sept. 9, 1856	VII.
15705	Noette, F	Wire, cutting and drawing	Sept. 9, 1856	II.
	Noll & Haas. (See Haas, Christian, and John C. Noll.)			
15893	Norcross, Samuel C	Saw-mill pitmen, adjustable stirrup for	Oct. 14, 1856	XIV.
	North, Chase, & North. (See Vedder & Sanderson, assignors)			
	North, Chase, & North. (See Gibbs, S. W , assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	North, Chase, & North. (See Gibbs, S. W., assignor.)			
	North, Chase, & North. (See Vedder & Sanderson, assignors.)			
15144	North, Henry S	Fire-arms	June 17, 1856	XIX.
14697	North, John	Paper, folding, machine for	April 15, 1856	XVIII.
15892	North, John	Stone, sawing	Oct. 14, 1856	XV.
	North, O. B., & Co. (See Gazlay, A. H., assignor.)			
14821	Norton, Eugene L	Morocco, machines for figuring and polishing	May 6, 1856	XVI.
14881	Norton, James L	File-cutting machine	May 13, 1856	II.
	Norton, Perry, & Treadwell. (See Gibbs, S. W., assignor.)			
	Norton, Perry, & Treadwell. (See Gibbs, Samuel W., assignor.)			
	Norton, Perry, & Treadwell. (See Gibbs, Samuel W., assignor.)			
	Norton, Perry, & Treadwell. (See Pratt, Samuel F., assignor.)			
	Norton, Treadwell, & Perry. (See Pratt, Samuel F., assignor.)			
	Norton, Treadwell, & Perry. (See Pratt, Samuel F., assignor.)			
15016	Nowell, Foster	Carding-machines, wool	June 3, 1856	III.
15145	Noye, John T	Packer, flour, clutch for	June 17, 1856	XII.
	Noyes, A. H., *et al.* (See Kimball & French, assignors.)			
14407	Nycum, Henry	Hubs, carriage	Mar. 11, 1856	X.
	Nye, Thomas C., *et al.* (See Engelbrecht, Theodore F.)			
				IX.

14366	Ogden, John T.	Vice, handle for	Mar. 4, 1856	II.
14825	Ohmert, Jesse	Ovens	May 6, 1856	V.
	Olcott, Edward B. (See Ketchum, A. C., assignor.)			
14030	Oldis, I. J.	Lock, pad	Jan. 1, 1856	II.
15151	Olendorff, Garret J.	Harrows, revolving	June 17, 1856	I.
14676	Oliver, H. W.	Clamp, floor	April 15, 1856	XIV.
14924	Oliver, Wm. G., and Thomas Harrison	Teeth, artificial, devices for setting	May 20, 1856	XX.
	Olmstead, David. G. (See McCurdy, R. A. L., assignor.)			
14141	O'Neil, John	Sewing-machines	Jan. 22, 1856	III.
15301	Orcutt, Lysander A.	Dovetailing machine	July 9, 1856	XIV.
14969	Ormsbee, Marcus.	Thread, winding, from skeins	May 27, 1856	III.
15302	Orr, Adrian V. B.	Shingle-machine	July 9, 1856	XIV.
14142	Osborn, John T.	Grate-bars	Jan. 22, 1856	V.
15570	Osborn, William	Bonnets and bonnet-frames, machines for pressing	Aug. 19, 1856	XXI.
	Osborne, Marmaduke	Felting for coats, hats, &c.	May 22, 1856	Extension.
16019	Osgood, Henry B.	Packages, spring-frame for	Nov. 4, 1856	XXII.
	Osgood, H. B., and Samuel L. Hay. (See Hay & Osgood.			
16185	Osgood, Hudson.	Planing-machines	Dec. 9, 1856	XIV.
15385	Otterson, James P S.	Fluids under pressure, method of tapping	July 22, 1856	XI.
15436	Pagett, Washington F.	Binding grain, &c., machines for	July 29, 1856	I.
14164	Paige, Lucius	Mills, grinding	Jan. 29, 1856	XIII.
14515	Paige, Lucius.	Brakes, railroad car, levers of	Mar. 25, 1856	X.
14756	Paige, Lucius, assignor to himself and Albert L. Lincoln.	Studs for wearing apparel	April 22, 1856	XXI.
15343	Paige, Lucius.	Sash-lock	July 15, 1856	II.
15617	Paige, Lucius.	Boilers, steam, water-gauges for	Aug. 26, 1856	VI.
15250	Painter, M. and C.	Mill-stones, swinging spout for feeding	July 1, 1856	XIII.
14734	Palmer, Edwin A.	Faucet, measuring	April 22, 1856	XI.
15743	Palmer, E. A.	Clevis	Sept. 16, 1856	I.
14289	Palmer, John H.	Tenoning window-blinds, machine for	Feb. 19, 1856	XIV.
15774	Palmer, S. B.	Blow-pipes	Sept. 23, 1856	V.
15061	Palmiter, Jason.	Shingle-machine	June 10, 1856	XIV.
14065	Pancoast, William C.	Presses, cheese	Jan. 8, 1856	XII.
	Pardin, H. (See Tyler, C. N., assignor.)			
15063	Parisette, Joseph	Freezers, ice-cream	June 10, 1856	XVII.
5492	Park Sidney W. and Edgar S. Ells.	Knitting-machines, rotary	Aug. 5, 1856	III.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14617	Parker, Earl, and Wm. Reynolds	Valve, automatic thermo-hydro-olaio-pneumatic	April 8, 1856	XI.
15666	Parker, Edward	Buckle for wearing apparel	Sept. 2, 1856	XXI.
14110	Parker, Ephraim	Clothes-pins, machines for making	Jan. 15, 1856	XVII.
14466	Parker, Geo. W	Clothes-pins, machines for making	Mar. 18, 1856	XVII.
14111	Parker, Ira S	Wash-boards	Jan. 15, 1856	XVII.
15437	Parkes, Thomas and Alfred	Printing-press	July 29, 1856	XVIII.
15571	Parkhurst, Chas., and Chas. Weed	Forging horse-shoe nails, machine for	Aug. 19, 1856	II.
15742	Parrott, Wm. P	Boiler-furnace, locomotive and steam	Sept. 16, 1856	VI.
15082	Parry, M. L	Saw-teeth, circular, method of repairing	June 10, 1856	XIV.
14731	Partridge, A. J	Telegraphs, printing, electro-magnetic	April 22, 1856	VIII.
	Patch, Asahel H., and J. A. Moore. (See Moore & Patch.)			
14618	Patterson, Andrew	Locks, door	April 8, 1856	II.
	Patterson, Horace, and Calvin D. Smith. (See Smith & Patterson.)			
14204	Pattison, Juan	Engines, steam, oscillating	Feb. 5, 1856	V.
15523	Patton, William	Sash-fastener	Aug. 12, 1856	II.
	Paul, Mifflin. (See Worrall, T. D., assignor.)			
15891	Pawling, Chas	Bee-hives	Oct. 14, 1856	I.
	Payne & Wilson. (See Wilson, Geo. F., and Geo. Payne.)			
14143	Peabody, Francis	Wind-wheels, velocity of, method of regulating	Jan. 22, 1856	XI.
14572	Peabody, Francis	Wind-wheels	April 1, 1856	XI.
15194	Peabody, Francis	Wind-wheel, self-regulating	June 24, 1856	XI.
15192	Peale, Franklin	Valve, elastic tubular	June 24, 1856	XI.
15741	Pease, A	Churns	Sept. 16, 1856	I.
14078	Pease, Henry, assignor to himself and Jas. Roby	Mowing-machines	Jan. 8, 1856	I.
	Pease, H., and W. H. Seymour, assignors. (See Seymour & Pease, assignors.)			
	Pease, H., and W. H. Seymour, assignors. (See			

16149	Peaslee, Horace W.	Fibrous manufactures, drying cylinders for	Dec.	2, 1856	III.
	Peck, Isaac. (See Hazard, O. S., and Isaac Peck.)				
14112	Peck, Reed	Door-fastenings	Jan.	15, 1856	II.
14203	Peck, Samuel	Daguerreotype cases, hinges of, fastening for the	Feb.	5, 1856	XVIII.
	Peckham, Hendrick & Hopkins. (See Hopkins, Henry S., assignor.)				
14467	Peckham, Merrit	Stoves and furnaces, sectional fire-pots for	Mar.	18, 1856	V.
16259	Pedrick, John C	Drying grain in the mass, apparatus for	Dec.	16, 1856	I.
14031	Peevy, Joseph	Presses, hay and cotton	Jan.	1, 1856	XII.
15386	Pelouze, Edward, jr.	Type-casting machines, valve for	July	22, 1856	XVIII.
14385	Pelton, A. S	Heating buildings by steam, apparatus for	May	13, 1856	V.
	Penrose, W. H. (See Wimley, John M., assignor.)				
15815	Percy, John	Steam wagon	Sept.	30, 1856	VI.
14925	Perdew, Philip, and Alex. W. Brinkerhoff	Ash-leaching apparatus	May	20, 1856	IV.
14468	Perkinpine, David R	Axles, railroad car, boxes of	Mar.	18, 1856	X.
15899	Perkins, J., and W. H. Burnet	Metal pipe, bending, machine for	Oct.	14, 1856	II.
16287	Perkins, John H. H.	Furnace, hot-air	Dec.	23, 1856	V.
16023	Perkins, Joshua	Husking corn, machines for	Nov.	4, 1856	I.
14113	Perley, Charles	Ships and other vessels, cargo-ports for	Jan.	15, 1856	VII.
15933	Perley, Charles	Ships' capstans	Oct.	21, 1856	VII.
14516	Perry, Horatio O	Valve motion for oscillating engines	Mar.	25, 1856	VI.
16020	Perry, Joseph R.	Mortising chisel to its mandrel, joint for uniting a	Nov.	4, 1856	XVI.
	Perry, Norton, & Treadwell. (See Gibbs, Samuel W., assignor.)				
	Perry, Norton, & Treadwell. (See Gibbs, Samuel W., assignor.)				
14619	Perry, Sanford S	Charring wood	April	8, 1856	V.
	Perry, Treadwell, & Norton. (See Gibbs, Samuel W., assignor.)				
	Perry, Treadwell, & Norton. (See Pratt, Samuel F., assignor.)				
	Perry, Treadwell, & Norton. (See Pratt, Samuel F., assignor.)				
	Perry, Treadwell, & Norton. (See Pratt, Samuel F., assignor.)				
	Peterson, Cresson, & Stuart. (See Beesley & Delany, assignors.)				
	Peterson, R., & E. Braman. (See Braman & Peterson.)				

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14732	Petherick, Thomas	Coal breakers	April 22, 1856	XXII.
15950	Pettijean, Tony	Processes for silvering mirrors	Oct. 21, 1856	IV.
15383	Pettengill, C. S.	Fire-arms, repeating	July 22, 1856	XIX.
14926	Pettenkofer, Max, and Carl Ruland	Gas generators, construction of	May 20, 1856	IV.
	Pettes, George W. (See Davis, Ari, Asahel Davis, & C. Cunningham.)			
15017	Peverly R. H.	Compasses, ships', self-registering	June 3, 1856	VIII.
14114	Pevey, Abiel	Iron scraps, remelting	Jan. 15, 1856	II.
15951	Pfaltz, Augustus	Soaps, rosin	Oct. 21, 1856	IV.
14290	Phelan, Michael.	Billiard table cushions	Feb. 19, 1856	XXII.
	Phelps, Charles, and Geo. Ashman. (See Hayes, Augustus A., assignor.)			
15191	Phelps, Henry	Vehicles, running gear of	June 24, 1856	X.
16125	Phelps, Samuel W	Trunks, travelling	Nov. 25, 1856	XVI.
	Phelps, Sprague, Russell, & Foote. (See Foote, Alvah, assignor.			
16187	Philips, William G	Gate, approach-opening	Dec. 9, 1856	IX.
14066	Phillips, Charles	Cars, dirt, machine for loading	Jan. 8, 1856	X.
14250	Phillips, Job	Harvesters, grain	Feb. 12, 1856	I.
15212	Phillips, John H., assignor to Leigh R. Holmead	Breastpins, shield to protect	June 24, 1856	XV II.
15898	Phillips, L. D.	Sub-marine exploring armors	Oct. 14, 1856	VII.
16021	Phillips, L. D.	Trowels	Nov 4, 1856	XV.
14733	Phillips, Nathan M.	Scale, grain, electro-magnetic	April 22, 1856	XII.
14970	Phillips, Philetus	Musical notation	May 27, 1856	XVIII.
	Phillips, Thomas, Merrill, & Willey. (See Willey, John F., assignor.)			
14203	Phineas, Myer	Pens, metallic	Feb. 5, 1856	XVIII.

823	*Pierce, Samuel, and J. J. Dulley, assignors to Fuller, Warren, & Morrison.*	Stoves, cooking	Aug. 5, 1856	Design.
764	Pierce, Samuel, and J. J. Dulley, assignors to Cox, Warren, Morrison, & Co.	Stoves, cooking	Feb. 12, 1856	Design.
822	Pierce, Samuel, and J. J. Dulley, assignors to Fuller, Warren, & Morrison.	Stoves, parlor	Aug. 5, 1856	Design
766	Pierce, Samuel, and Sanford Burnam, assignors to Cox, Warren, & Morrison.	Stoves, cooking	Feb. 12, 1856	Design.
15524	Pierce, Warren S.	Amalgamator, gold washer and	Aug. 12, 1856	II.
14573	Pierpont, Asahel	Soldering wire ferrules	April 1, 1856	II.
14971	Pilson, Robert, and Stephen P. Heath	Looms	May 27, 1856	III.
14633	Pine, Robert G.	Buckles, polishing, machine for	April 8, 1856	II.
15896	Pingree, S. W.	Tan liquor to hides, order of applying	Oct. 14, 1856	XVI.
15303	Pingree, Samuel W	Tanning hides	July 8, 1856	XVI.
	Pingree, T. P. (See Pratt, Elisha, assignor.)			
	Piper & Howe, assignors. (See Howe & Piper, assignors.)			
	Piper & Howe, assignors. (See Howe & Piper, assignors.)			
	Piper, W., and J. H. Darlington. (See Darlington & Piper.)			
14291	Pitman, Charles S.	Axles to shafts, mode of applying	Feb. 19, 1856	X.
14882	Pittock, George W., John B. Stott, and Galen Richmond.	Water-wheels, reacting	May 13, 1856	XI.
14165	Pitts, Joseph N.	Paper stock, flocks and, machine for cutting	Jan. 29, 1856	III.
	Place, John A. (See Stowell, Abijah D.)			
14591	Plant, John, and Charles G. Ball	Ranges, cooking	April 8, 1856	V.
15744	Plant, Pascal	Saddles, riding	Sept. 16, 1856	XVI.
	Plantz, Higbee, and Babbitt. (See Babbitt, Higbee, and Plantz.)			
15493	Platt, Anson H.	Door stay	Aug. 5, 1856	II.
	Platt, E., E. C. Blakeslee, and E. Jordan. (See Blakeslee, Platt, and Jordan.)			
14514	Plimpton, H. R. & J. L.	Bedsteads, wardrobe, combined with other furniture	Mar. 25, 1856	XVII.
15084	Pluche, J. C. & L. C.	Harvesters, sickle bars of, attaching teeth to	June 10, 1856	I.
15146	Pluche, J. C. & L. C.	Harvesters	June 17, 1856	I.
16039	Plumb, William Henry	Ores, &c., crushing rollers for	Nov. 4, 1856	II.
14144	Plummer, F.	Planters, seed	Jan. 22, 1856	I.
15934	Pochin, Henry Davis	Alum making, preparing clay for	Oct. 21, 1856	IV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15953	Poleux, Joseph	Process of coating metals with metals	Oct. 21, 1856	IV.
	Pollak, M. (See Falkenau, M., M. Pollak, and S. Wiener.)			
15775	Pomeroy, N. W	Lubricator	Sept. 23, 1856	IV.
16105	Pomroy, Josiah B	Lumber feeding rollers, parallel yielding of, device for governing the.	Nov. 18, 1856	XIV.
14166	Porter, Rufus	Punching machine	Jan. 29, 1856	II.
15085	Porter, Rufus	Signals, fog, mode of sounding whistles for	June 10, 1856	VII.
	Porter, Wm. M. (See Goodyear & Berry.)			
14469	Post, Nathan	Harness buckles	Mar. 18, 1856	XVI.
	Post, Stephen. (See Carlton, Thomas I.)			
16098	Potter, Bennett, jr	Cork, softening, by steam	Nov. 18, 1856	XXII.
15572	Potter, John	Tenoning machine	Aug. 19, 1856	XIV.
	Potter, Nathaniel. (See Baird, Daniel N., assignor.)			
	Powers, D., A. E., and N. B. (See Glominski, Antoine, assignor.)			
	Powers, D., A. E., and N. B. (See Glominski, Antoine, assignor.)			
14827	Powers, Thomas H	Iron, smelting, furnaces for	May 6, 1856	II.
14884	Powers, Thomas H	Pump, cattle	May 13, 1856	XI.
14883	Powers, Thomas H	Brooms and brushes	May 13, 1856	XVII.
14430	Pratt, Elisha, assignor to E. Pratt and H. P. Upton, assignors to Pratt and T. P. Pingree.	Leather splitting machines	Mar. 11, 1856	XVI.
14775	Pratt, Ephraim L	Apples, paring, machines for	April 29, 1856	XVII.
16067	Pratt, Ephraim L	Apples, slicing, machines for	Nov. 11, 1856	XVII.
16080	Pratt, Ephraim L., assignor to L. Harrington	Apples, potatoes, &c, machines for paring	Nov. 11, 1856	XVII.
	Pratt, Julius, & Co. (See Breckenridge, A. C., assignor.)			
	Pratt, Julius, & Co. (See Fosket & Stedman, assignors.)			
14067	Pratt, Randal	Rake, horse, hay	Jan. 8, 1856	I.

834	Pratt, Samuel F., assignor to Treadwell, Perry, & Norton.	Stoves, oven	Sept. 23, 1856	Design.
833	Pratt, Samuel F., assignor to Treadwell, Perry, & Norton.	Stoves, parlor	Sept. 23, 1856	Design.
16036	Pratt, Wm. S., assignor to J. S. C. Thursby	Carpets, fabric for underlaying	Nov. 4, 1856	XVII.
14927	Price, E.	Elevator for cotton, sugar-cane, &c	May 20, 1856	XII.
14641	Priestly, Thomas, assignor to Daniel Holden	Cans, oil	April 8, 1856	V.
14251	Prime, John	Compasses, ships'	Feb. 12, 1856	VIII.
14928	Proctor, Napoleon B.	Bridge, draw, floating	May 20, 1856	IX.
15438	Prosser, T. T.	Sawing-machine	July 29, 1856	XIV.
16099	Proust, P. E.	Axles, car, and other journals, lubricating	Nov. 18, 1856	X.
15897	Provines, William	Uterine supporters	Oct. 14, 1856	XX.
15936	Provost, Wm. F. and Charles J.	Presses, cotton	Oct. 21, 1856	XII.
14698	Pruyne, George W	Leather straps, &c., machines for raising and creasing.	April 15, 1856	XVI.
14929	Puffer, A. D	Gutta-percha, lining metal pipes with	May 20, 1856	IV.
	Pugh, Jonathan H., and Jacob J. Smith. (See Smith & Pugh.)			
16022	Purdom, Wilson A.	Cotton-gins	Nov. 4, 1856	III.
15895	Purkey, Jacob	Washing-machines	Oct. 14, 1856	XVII.
16126	Purnell, A. M.	Cans and vessels, apparatus for exhausting air from, and hermetically sealing.	Nov. 25, 1856	XVII.
14252	Pusey, Lea	Fires, method of extinguishing	Feb. 12, 1856	V.
16286	Pusey, Lea	Scales, railroad platform, arrangement of	Dec. 23, 1856	XII.
	Putnam Machine Company. (See Brown, C. H., and C. Burleigh.)			
	Putnam Machine Company. (See Burleigh, Chas., assignor.)			
16186	Putnam, S. S.	Iron, forging, machines for	Dec. 9, 1856	II.
15816	Pyle, Joseph	Leather, finishing, machines for	Sept. 30, 1856	XVI.
14368	Quantin, A	Gaseous pressure, method of bottling fluids under	Mar. 4, 1856	IV.
14735	Quigley, Alanson	Carriage tops, apparatus for raising and lowering	April 22, 1856	X.
150	Quigley, Alanson	Carriage tops, raising and lowering, apparatus for	Aug. 26, 1856	Add. imp't.
14900	Quimby, Samuel D., assignor to Edward A. Locke.	Bags, travelling, and mail pouches, frames for	May 13, 1856	XXII.
15575	Rains, H. A.	Saddles, cart	Aug. 19, 1856	XVI.
342	Ralston, Andrew	Threshing and winnowing grain, machines for	Jan. 15, 1856	Reissue.
	Ralston, Andrew	Threshing and winnowing grain, machines for	Feb. 18, 1856	Extension.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14167	Ramsay, George M	Hinge	Jan. 29, 1856	II.
15525	Ramsay, George M	Files	Aug. 12, 1856	II.
15776	Ramsay, George M	Pavement, cast-iron	Sept. 23, 1856	IX.
15618	Ramsay, H. B.	Brick-machines	Aug. 26, 1856	XV.
14776	Randall, Silas G	Planters, corn	April 29, 1856	I.
15194	Randall, Silas G	Seeding-machine, hand	June 24, 1856	I.
15387	Randall, Silas G	Harvesters, self-raker for	July 22, 1856	I.
15573	Randel, Adonijah	Bristle separator	Aug. 19, 1856	XVII.
	Rankin & Gustine. (See Gustine, John, and J. M. Rankin.)			
775	Ransom, Samuel H	Stoves, cooking	April 1, 1856	Design.
772	Ransom, Samuel H	Stoves, parlor	April 1, 1856	Design.
774	Ransom, Samuel H	Stove-plates	April 1, 1856	Design.
773	Ransom, Samuel H	Stoves, six-plate	April 1, 1856	Design.
776	Ransom, Samuel H	Stoves, cooking, elevated oven	April 1, 1856	Design.
781	Ransom, Samuel H	Stoves, cooking	April 15, 1856	Design.
380	Rapp, Adam W.	Pens, gold	July 22, 1856	Reissue.
16188	Ratcliff, Charles	Nut-machines	Dec. 9, 1856	II.
15526	Ravenel, St. Julien	Stone, artificial	Aug. 12, 1856	XV.
402	Ravenel, St. Julien	Stone, artificial	Oct. 14, 1856	Reissue.
14205	Ray, B. F.	Harvesters	Feb. 5, 1856	I.
	Read, Brown, & Smith. (See Smith, G. H. Brown, and J. A. Read, assignors.)			
	Read, Brown, & Smith. (See Smith, G. H. Brown, and J. A. Read, assignors.)			
	Read, Brown, & Smith. (See Smith, G. H. Brown, and J. A. Read, assignors.)			
	Read, Brown, & Smith, assignors to Leibrant, McDowell, & Co. (See Smith, Brown, & Read, assignors.)			
	Read, Henry F. (See Dod, Daniel, assignor.)			

	Read, J. A., G. Smith, and H. Brown. (See Smith, Brown, & Read.)			
	Read, J. A., G. Smith, and H. Brown. (See Smith, Brown, & Bead.)			
	Read, J. A., G. Smith, and H. Brown, assignors to Hayward, Bartlett & Co. (See Smith, Brown, & Read, assignors.)			
15999	Read, John B.	Projectiles for ordnance	Oct. 28, 1856	XIX
	Read, Jonathan	Reaping-machines	Mar. 11, 1856	Extension.
387	Read, Jonathan	Reaping-machines	Aug. 19, 1856	Reissue.
388	Read, Jonathan	Reaping-machines	Aug. 19, 1856	Reissue.
389	Read, Jonathan	Reaping-machines	Aug. 19, 1856	Reissue.
390	Read, Jonathan	Reaping-machines	Aug. 19, 1856	Reissue
391	Read, Jonathan	Reaping-machines	Aug. 19, 1856	Reissue.
792	Read, Joseph A., assignor to John H. Cahill	Oven and stove doors	May 13, 1856	Design.
	Read, Joseph A., H. Brown, and G. Smith. (See Smith, Brown, & Read.)			
	Read, Smith, & Brown, assignors to Cox, Hagar, & Cox. (See Smith, Brown, & Read, assignors.)			
15857	Redmond, O	Sash-lock	Oct. 7, 1856	II.
14431	Reed, Charles C., assignor to Charles C. Reed, W. S. Reinert, and J. Schnell.	Umbrella ribs, manufacturing	Mar. 11, 1856	XXI.
15251	Reed, George P	Watches: independent seconds, movement for	July 1, 1856	VIII.
	Reeves, Jonathan, and John C. Heuermann. (See Heuermann & Reeves.)			
348	Reily, John	Harvesting-machines	Jan. 29, 1856	Reissue.
14790	Reily, John	Harvester-fingers	April 29, 1856	I.
15252	Reily, John	Reaping and mowing machines	July 1, 1856	I.
14079	Reily, John, assignor to Heath, Douseman & Reily.	Harvesters	Jan. 8, 1856	I.
15858	Reinhardt, Charles C	Truss-pads, glass or earthen	Oct. 7, 1856	XX.
	Reisinger, Graff & Graff. (See Vedder, N. S., assignor.)			
	Renwick, E. S. (See Comfort, Samuel, jr., assignor.)			
15576	Renwick, Edward S.	Valve-motions for steam engines	Aug. 19, 1856	VI.
799	Resor, Wm	Stoves, cooking	June 3, 1856	Design.
800	Resor, Wm	Stoves, cooking	June 3, 1856	Design.
14518	Reyman, J. B	Fence, field	Mar. 25, 1856	IX.
15745	Reynolds, Charles H	Engines, steam, variable cut-off for	Sept. 16, 1856	VI.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
16068	Reynolds, Ira	Washing-machines	Nov. 11, 1856	XVII.
14972	Reynolds, James	Gutta-percha, apparatus for cleaning	May 27, 1856	IV.
15086	Reynolds, James	Gutta-percha tubing, mandrels for making	June 10, 1856	IV.
15087	Reynolds, James	Gutta-percha, feed apparatus for working	June 10, 1856	IV.
15439	Reynolds, James	Gutta-percha, apparatus for covering wire	July 29, 1856	IV.
16215	Reynolds, James	Gutta-percha cord, making	Dec. 9, 1856	IV.
14292	Reynolds, Rensselaer	Looms, temples for	Feb. 19, 1856	III.
	Reynolds, William. (See Parker & Reynolds.)			
	Riblet, St. John, Burr & Wright. (See Wells, Henry A., assignor.)			
	Riblet, St. John, Burr, & Wright. (See Wright, Henry A., assignor.)			
	Rice, Charles. (See Whorf, S. H., assignor.)			
	Rice, Charles. (See Whorf, S. H., and Charles Rice.)			
	Rice, Henry, *et al.* (See Maycock, Thomas, assignor.)			
15304	Rice, Orrin	Saws, circular and other, method of grinding	July 8, 1856	XIV.
15344	Rich, John	Ploughs	July 15, 1856	I.
16189	Rich, Obadiah	Process of preparing tannate of lime	Dec. 9, 1856	IV.
	Rich, Reuben	Water-wheels	July 8, 1856	Extension.
14886	Richards, Samuel	Railroads, snow plough for	May 13, 1856	IX.
15018	Richards, Samuel	Furnaces, glass	June 3, 1856	V.
15389	Richards, Samuel	Furnaces, glass	July 22, 1856	V.
14574	Richardson, Calvin A	Beds, straw and husk, instrument for stirring	April 1, 1856	XVII.
	Richardson, Cox, & Boynton. (See Hathaway, David, assignor.)			
	Richardson, Cox, & Boynton. (See Vedder, N. S., assignor.)			
	Richardson, Cox, & Boynton. (See Vedder & Ripley, assignors.)			

	Richardson, Cox, & Boynton. (See Hathaway, David, assignor.)			
	Richardson, J. B. (See Davis, Ari, Asahel Davis, and C. Cunningham.)			
14967	Richmond, A. B	Felloes, machine for manufacturing	May 27, 1856	XIV.
15253	Rickards, D. H	Streets, sweeping, machine for	July 1, 1856	IX.
15254	Ridgaway, Socrates M	Dough, making and kneading, machines for	July 1, 1856	XVII.
15707	Riedel, Julius	Cartridges	Sept. 9, 1856	XIX.
	Rightor, W. R. (See Craig & Rightor.)			
	Rightor, W. R., and W. P. Craig. (See Craig, Waldo P., assignor)			
15817	Riley, John M	Ships' blocks, sheave pin of, means for lubricating the.	Sept. 30, 1856	VII.
15818	Riley, John M	Hubs to axles, mode of attaching	Sept. 30, 1856	X.
14115	Ripley, Ezra	Metals, casting	Jan. 15, 1856	II.
	Ripley, Ezra, and N. S. Vedder, assignors to Cox, Richardson, & Boynton. (See Vedder & Ripley, assignors.)			
	Ripley, E., & N. S. Vedder, assignors to Swetland & Little. (See Vedder & Ripley, assignors.)			
14703	Risher, Thomas A., assignor to himself and J. K. Cooper.	Seeding machines	April 15, 1856	I.
16025	Roach, Thomas R	Rakes, hay	Nov. 4, 1856	I.
16150	Robbins, E. Y	Baby-walker and jumper	Dec. 2, 1856	XVII.
15777	Robbins, Isaac I	Rakes, hay	Sept. 23, 1856	I.
	Roberts, C. (See Lyndall, J., assignor)			
15255	Roberts, Cyrus	Mill, corn and cob	July 1, 1856	XIII.
14517	Roberts, Cyrus, and John Cox	Separators, grain	Mar. 25, 1856	I.
14899	Roberts, Milton, assignor to himself and Isaac N. Felch.	Lathes, cutter-head for	May 13, 1856	XIV.
14941	Roberts, Milton, assignor to himself, Isaac Roberts, and Isaac N. Felch.	Lathe arrangement for turning irregular forms	May 20, 1856	XIV.
14168	Robertson, H. G	Bee-hives	Jan. 29, 1856	I.
15107	Robertson, H. G	Collars, horse, machines for stuffing	June 10, 1856	XVI.
15620	Robertson, John	Pipe-lead, making	Aug. 26, 1856	II.
14324	Robertson, T. J. W	Sewing-machine	Feb. 26, 1856	III.
343	Robertson, Thomas J. W., assignor to himself and A. E. Beach.	Sewing-machine	Jan. 15, 1856	III.
14253	Robertson, Wm. H., and George W. Simpson	Fire-arms, breech-loading	Feb. 12, 1856	XIX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14930	Robingson, John	Saws, reciprocating, method of hanging	May 20, 1856	XIV.
15667	Robingson, John	Engines, steam, rotary	Sept. 2, 1856	VI.
15668	Robingson, John	Candle-moulding machine	Sept. 2, 1856	IV.
15820	Robingson, John	Locomotives for roads, &c	Sept. 30, 1856	VI.
16024	Robingson, John	Pumps, chain	Nov. 4, 1856	XI.
14736	Robinson, Asa P	Pavements, cast-iron	April 22, 1856	IX.
14032	Robinson, Charles, and Charles T. Chester	Electrical, automatic, circuit breakers	Jan. 1, 1856	VIII.
15256	Robinson, Daniel	Gates, balance for flumes in water power	July 1, 1856	XI.
	Robinson, George W. and E. B.	Vessels, steering apparatus for	Sept. 26, 1856	Extension.
15819	Robinson, L	Cultivators	Sept. 30, 1856	I.
14829	Robinson, N. W	Barrel-heads, machine for manufacturing	May 6, 1856	XIV.
	Roby, James. (See Pease, Henry, assignor.)			
	Rockwood, Aaron W. (See Barden, J. S., assignor.)			
15794	Rode, Rufus, assignor to John Denig	Boat-oars	Sept. 23, 1856	VII.
15390	Rodefer, J. W	Scaffold for shingling roofs	July 22, 1856	IX.
14470	Rodgers, James	Omnibus-registers	Mar. 18, 1856	X.
14575	Rodgers, Wm., and Abraham Bannon	Forge-fires	April 1, 1856	II.
14293	Roesler, F	Pessaries, construction of	Feb. 19, 1856	XX.
15778	Rogers, Ethan	Brick-press, hydraulic	Sept. 23, 1856	XV.
15523	Rogers, J	Bridges	Sept. 30, 1856	IX.
16190	Roland, Isaac S	Washing-machines	Dec. 9, 1856	XVII.
15019	Rollins, Josiah A	Melodeons	June 3, 1856	XVIII.
14409	Roney, B. T	Harvesters, grain and grass	Mar. 11, 1856	I.
14777	Roney, Benj. T	Harvester-cutters	April 29, 1856	I.
	Root, Elisha K. (See Dickerson, Edward N.)			
14778	Root, John B	Engines, steam, rotary	April 29, 1856	VI.
	Root, Marcus A., and Giles Langdell. (See Langdell & Root.)			
14169	Root, Riley, and Samuel G. Holyoke	Railroad-tracks, machine for clearing snow from	Jan. 29, 1856	X.
16026	Roper, S. H	Sewing-machines	Nov. 4, 1856	III.
14832	Rose, John	Composition for stuffing leather	May 6, 1856	IV.
		Wagons, extension	May 6, 1856	X.

14146	Ross, James F	Valves, steam, in blower engines, means for operating the.	Jan.	22, 1856	VI.
14973	Ross, John Gerard	Propellers, hand	May	27, 1856	VII.
16100	Roth, Julius A	Bleaching process	Nov.	18, 1856	IV.
	Rotherwel, Lewis, *et al.* (See Martin, James W., assignor.)				
14779	Rowe, Bradford	Wrench	April	29, 1856	II.
14519	Rowe, James	Fences, field, portable	Mar.	25, 1856	IX.
	Rowe, J., A. Frear, and William Van Arden. (See Van Arden, William, assignor.)				
15779	Royce, J. A	Chimney-tops, self-regulating draught for	Sept.	23, 1856	V.
15441	Ruger, Nelson	Wood, carving, certain improved devices in	July	29, 1856	XIV.
	Ruggles, Frederick A., *et al.* (See Hathaway, Anson S., assignor.)				
15440	Ruggles, S. W	Detector, pickpocket	July	29, 1856	XXII.
14830	Ruggles, Solomon W	Stumps, extracting, machine for	May	6, 1856	IX.
16257	Ruggles, Solomon W., assignor to Silas Ruggles	Wind-mills	Dec.	16, 1856	XI.
	Ruland, Carl, and Max Pettenkofer. (See Pettenkofer & Ruland.)				
	Russell, Andrew J. (See Galentine & Russell.)				
15688	Russell, Charles E	Cans, preserve, hermetically sealing	June	10, 1856	XVII.
15089	Russell, David	Fire-engines, method of applying horse-power to	June	10, 1856	V.
15574	Russell, Edwin A	Stamp, hand	Aug.	19, 1856	XVIII.
	Russell, E. P. (See Hoff, C. C., assignor.)				
14410	Russell, Edwin P	Straw-cutters	Mar.	11, 1856	I.
15708	Russell, Henry D	Lock	Sept.	9, 1856	II.
	Russell, Shroder, & Anderson. (See Shroder, Richard, assignor.)				
	Russell, Sprague, Phelps, & Foote. (See Foote, Alvah, assignor.)				
15725	Saladee, C. W	Carriage-tops, mode of adjusting	Sept.	9, 1856	X.
15345	Saladee, Cyrus W	Carriage, pleasure, three-wheeled	July	15, 1856	X.
	Salewski, Shroeder, & Schmidt. (See Shroeder, Salewski, & Schmidt.)				
15196	Salisbury, H. E	Forms, tapering, method of turning	June	24, 1856	XIV.
	Salisbury Manufacturing Company. (See Derby, John P., assignor.)				
15391	Salomon, John C., Fr	Liquids used as a motive-power	July	22, 1856	IV.
15392	Salomon, John C., Fr., and George E. Cooper	Saddles, riding	July	22, 1856	XVI.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15900	Schroder, Charles	Bed bottoms, spring	Oct. 14, 1856	XVII.
16288	Schroeder, H, L. Salewski, and Wm. Schmidt	Fire-arms, breech-loading	Dec. 23, 1856	XIX.
14370	Schuh, Geo., and Phineas L. Slayton	Boots and shoes, pegging, machines for	Mar. 4, 1856	XVI.
14471	Schultz, C. A	Marble in taper form, machine for sawing	Mar. 18, 1856	XV.
	Schwager, John A. (See Reid, L., assignor.)			
14472	Schwickardt, Philip	Wood, designs on, mode of producing	Mar. 18, 1856	XIV.
	Scott, Isaac, and E. P. Fitch. (See Kern, James M., assignor.)			
	Scott, Isaac, and E. P. Fitch. (See Kern, James M., assignor.)			
	Scott & Sirret. (See Sirret & Scott.)			
16152	Scotton, S.	Ice-saw	Dec. 2, 1856	XXII.
	Scroggs, John A. (See Guard, C. H., assignor.)			
15148	Seagrave, J. D	Apples, paring machine for	June 17, 1856	XVII.
15822	Seaman, John F	Planters, seed	Sept. 30, 1856	I.
15825	Searles, A. M	Boiler, steam, grates	Sept. 30, 1856	VI.
14473	Sees, John R	Rods, connecting, adjusting the brasses of	Mar. 18, 1856	XIII.
14576	Sees, John R	Pump, feeding, method of varying the stroke of, for steam-engines.	April 1, 1856	XI.
15494	Sees, John R	Boilers, steam, heating feed-water apparatus for	Aug. 5, 1856	VI.
16071	Sees, John R	Locomotive engines, heating feed-water of, arrangement for.	Nov. 11, 1856	VI.
14255	Selthen, John	Bottles, envelopes for	Feb. 12, 1856	XXII.
15670	Selby, N. N	Whiffle-tree for detaching horses from carriages	Sept. 2, 1856	X.
14836	Selpho, William	Legs, artificial, construction of	May 6, 1856	XX.
	Senor, Jos. W. (See Waite & Senor.)			
15364	Senseny, Jeremiah S, assignor to himself and G. H. Merklein.	Lamps, lard	July 15, 1856	V.
14869	Seropyan, C. D	Bank notes, &c., from being counterfeited, method of preventing.	Jan. 8, 1856	XVIII.
15578	Sessions, Francis E	Window-sash	Aug. 19, 1856	IX.
14887	Seymour, Frederick J	Kettles, brass, making	May 13, 1856	II.

15395	Seymour, Frederick J.	Lamps, locomotive reflector	July	8, 1856	V.
377	Seymour, P.	Sowing machines	July	15, 1856	Reissue.
16253	Seymour, Wm. H., assignor to Seymour & Morgan.	Harvesting-machines, finger-bar for	Dec.	16, 1856	I.
15721	Seymour, W. H. and H. Pease, assignors to Seymour & Morgan.				
	Seymour, W. H., and H. Pease, assignors to W. H. Seymour and Dayton S. Morgan.				
15624	Shaler, Reuben	Ships and other vessels, bilge and leakage water indicator for.	Aug.	26, 1856	VII.
15149	Shands, Jos. G	Paddle-wheels, feathering	June	10, 1856	VII.
15782	Shannon, Sinclair	Lanterns	Sept.	23, 1856	V.
14699	Shapter, John S.	Engines, steam, cut-offs for	April	15, 1856	VI.
15759	Shapter, John S	Boiler, steam cylinder within the, arrangement of	Aug.	19, 1856	VI.
14116	Sharp, Samuel T	Straw-cutters	Jan.	15, 1856	I.
14413	Sharp, Theodore	Saws, mulley, method of straining	Mar	11, 1856	XIV.
16072	Sharps, C	Guns, breech-loading	Nov.	11, 1856	XIX.
15781	Shattuck, A. D	Carding engines	Sept.	23, 1856	III.
15784	Shattuck, A. D	Carding engines	Sept.	23, 1856	III.
16193	Shaw, Charles A	Churns	Dec.	9, 1856	I.
14170	Shaw, Henry F	Jackscrew	Jan.	29, 1856	XII.
15834	Shaw, Henry F., assignor to H. F. & G. F. Shaw.	Valves, regulating, for steam-engines	Sept.	23, 1856	VI.
15150	Shaw, James	Portfolio	June	17, 1856	XVIII.
15532	Shaw, Jerome B	Glass, method of lettering and ornamenting	Aug.	12, 1856	XVIII.
14325	Shaw, Wm. F	Gas, heating by, apparatus for	Feb.	26, 1856	V.
14414	Shaw, Wm. F	Gas, heating and cooking by, apparatus for	Mar.	11, 1856	V.
14737	Shaw, Wm. F	Gas-burners	April	22, 1856	V.
149	Shaw, Wm. F	Gas heater	July	22, 1856	Addt'l imp't.
15531	Shaw, Wm. F	India-rubber, treating	Aug.	12, 1856	IV.
407	Shaw, Wm. F	Gas, heating by, apparatus for	Oct.	28, 1856	Reissue.
16031	Shaw, Wm. F	Gas, heating or cooking by, apparatus for	Nov.	4, 1856	V.
	Sheldon, Chandler, & Moore. (See Moore, Chas., assignor.)				
	Sheldon & Smith. (See Smith, Harvey, and F. A. Sheldon.)				
15596	Shepard, Edward C	Electro-magnetic machines	Aug.	19, 1856	VIII.
14738	Shepard, Samuel R., and Orson W. Stow	Metal, sheet, working in	April	22, 1856	II.
818	Shepherd, J. & R	Clock-fronts	July	29, 1856	Design.
15580	Shepler, John S	Washing-machine	Aug.	19, 1856	XVII.
16314	Sherman, N. C., and J. Mason	Planters, seed	Dec.	23, 1856	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
374	Sherman, S. I	Levels, spirit, mounting	July 1, 1856	Reissue.
16292	Sherman, Sylvester I	Truss-pads	Dec. 23, 1856	XX.
15747	Sherwin, P. O	Shingle-machine	Sept. 16, 1856	XIV.
14474	Sherwood, John P	Nail-plate feeding machines	Mar. 18, 1856	II.
	Sherwood, John P	Locks, door	Dec. 15, 1856	Extension.
401	Sherwood, John P., assignor to Calvin Adams, assignor to J. P. Sherwood.	Locks, door	Oct. 7, 1856	Reissue.
15746	Shields, B. G	Cotton-pickers	Sept. 16, 1856	I.
15955	Shireman, J. H	Planters, seed	Oct. 21, 1856	I.
405	Shirley, Daniel H	Pianoforte action	Oct. 21, 1856	Reissue.
14256	Shoenberger, Edwin F	Coupling safety-spring	Feb. 12, 1856	X.
15495	Shopland, John	Stove, cooking, combined steam and hot-air	Aug. 5, 1856	V.
15528	Shopland, John	Window-sashes, spring-pulleys for	Aug. 12, 1856	IX.
15463	Shorey, John C., assignor to himself and A. J. Webster.	Water-wheels, gates for, method of operating	July 29, 1856	XI.
15306	Short, Sewall	Horse-shoes	July 9, 1856	II.
16255	Shroder, Richard, assignor to J. L. Russell, R. Shroder, and A. Anderson.	Oil, coal, apparatus for	Dec. 16, 1856	IV.
14257	Shunk, Christian	Furnaces, blast, fluxing	Feb. 12, 1856	II.
14740	Sibley, H. H	Tent, conical	April 22, 1856	XXII.
14739	Sibley, L. D	Emissions, nocturnal, rings to prevent	April 22, 1856	XX.
15346	Siemers, J. G	Mill-stones, adjustment of	July 15, 1856	XIII.
15935	Sigourney, John M	Wheels, railroad car, cast-iron	Oct. 21, 1856	X.
	Siller, Henry J. (See Fox & Siller.)			
	Silver, Dole, & Felch. (See Dole, L. A., assignor.)			
15257	Silver, Wm., jr	Blasting powder	July 1, 1856	IX.
	Simms, B. F., and Arthur Barbarin. (See Barbarin & Simms.)			
14371	Simonds, Horace B	Hubs to axles, mode of attaching	Mar. 4, 1856	X.
15795	Simpson, A., assignor to S. H. F. Bingham	Belt-punch	Sept. 23, 1856	XII.

	Singer, I. M., and Edward Clark. (See Greenough, J. J., assignor.)			
14741	Sirret, Emile, and Wm. H. Scott	Lanterns, lamps to, method of fastening	April 22, 1856	V.
14577	Sitton, John	Wheelwright machine	April 1, 1856	XIV.
15901	Sitton, John	Wheelwrights' machine	Oct. 14, 1856	XIV.
16290	Skeels, Levi	Shears, tinners'	Dec. 23, 1856	II.
	Skinner, Halcyon, & Alex. Smith. (See Smith & Skinner.)			
15671	Slade, William	Buckle for wearing apparel	Sept. 2, 1856	XXI.
15783	Slaight, Thomas	Lock for freight cars	Sept. 23, 1856	II.
15581	Slaughter, Wm. B	Cars, railroad, head-rest to be used in	Aug. 19, 1856	X.
15622	Slayton, Nelson B	Pen, fountain	Aug. 26, 1856	XVIII.
14022	Slayton, P. L	Sewing-machines	Jan. 1, 1856	III.
	Slayton, Phineas L. (See Schuh, George, and P. L. Slayton.)			
14835	Sloan, Thomas	Boilers, steam-heating, feed-water apparatus for	May 6, 1856	VI.
	Slocum & Watkinson. (See Halvorson, Halvor, assignor.)			
14373	Smith, Aaron and Thomas S	Plows, gang	Mar. 4, 1856	I.
15529	Smith, A. B., and Wm. Weaver	Projectiles, throwing, machine for	Aug. 12, 1856	XIX.
15937	Smith, Abbey S	Music, instrumental, scale for	Oct. 21, 1856	XVIII.
16037	Smith, Alexander, and Halcyon Skinner	Looms, power	Nov. 11, 1856	III.
14415	Smith, Alfred E	Axles, boxes for	Mar. 11, 1856	X.
16294	Smith, Alfred E	Axletrees, mode of connecting shafts with	Dec. 23, 1856	X.
	Smith, Atkins. (See Lavender, Wm. R.)			
	Smith, Augustus B. (See Mallett & Smith.)			
15393	Smith, Calvin D., and Horace Patterson	Match, friction, machine	July 22, 1856	XVII.
14326	Smith, David G	Door-spring	Feb. 26, 1856	II.
16165	Smith, David W	Ships, steering apparatus for	Dec. 2, 1856	VII.
16251	Smith, Daniel C	Reaping and mowing machines	Dec. 16, 1856	I.
15530	Smith, Edward Q	Chairs, manufacturing	Aug. 12, 1856	XIV.
849	Smith, Elihu	Stoves, parlor	Nov. 11, 1856	Design.
854	Smith, Garrettson, and H. Brown	Stoves, cooking	Dec. 23, 1856	Design.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
803	Smith, Garrettson, and Henry Brown, assignors to J. G. Abbott and A. Lawrence.	Stoves, air-tight	June 17, 1856	Design.
756	Smith, G., H. Brown, and J. A. Read, assignors to J. G. Abbott and A. Lawrence.	Stoves, cooking	Jan. 22, 1856	Design.
802	Smith, G., H. Brown, and Jos. A. Read, assignors to J. G. Abbott and A. Lawrence.	Stoves, cooking	June 17, 1856	Design.
804	Smith. G., H. Brown, and J. A. Read, assignors to J. G. Abbott and A. Lawrence.	Stoves, nine-plate	June 17, 1856	Design.
805	Smith, G., H. Brown, and Jos. A. Read, assignors to J. G. Abbott and A. Lawrence.	Stoves	June 17, 1856	Design.
757	Smith, G., H. Brown, and J. A. Read, assignors to A. E. Warfield.	Furnaces, portable	Jan. 22, 1856	Design.
758	Smith, G , H Brown, and J. A. Read, assignors to A. E Warfield.	Ranges, portable	Jan. 22, 1856	Design.
830	Smith, G., H. Brown, and J. A. Read, assignors to Cox, Hagar, & Cox.	Stoves	Sept. 16, 1856	Design.
844	Smith, G., H. Brown, and J. A. Read, assignors to Hayward, Bartlett, & Co.	Stoves	Oct. 7, 1856	Design.
811	Smith, Garrettson, Henry Brown, and Joseph A. Read, assignors to Leibrant, McDowell, & Co.	Stoves, cooking	June 24, 1856	Design.
15496	Smith, Gilbert	Fire-arms, breech-loading	Aug. 5, 1856	XIX.
15785	Smith, H. E	Grain-separators	Sept. 23, 1856	XIII.
16191	Smith, Hamilton E	Corn-shellers	Dec. 9, 1856	I.
785	Smith, Harvey, and Frederick A. Sheldon	Stove-plates	April 22, 1856	Design.
14620	Smith, H. H	Valve, governor, for steam engines	April 8, 1856	VI.
14372	Smith, Hiram	Pumps, air, escapes for	Mar. 4, 1856	XI.
14300	Smith, H. L., assignor to Wm. Neff and Peter Neff, jr.	Photographic pictures on japanned surfaces	Feb. 19, 1856	XVIII.
14147	Smith, Horace, and Daniel B. Wesson, assignor to the Volcanic Repeating Arms Co.	Fire-arms, cartridges of, primers for	Jan. 22, 1856	XIX.
15031	Smith, Jacob W., and Jonathan H. Pugh (Putney, assignor)	Bedsteads	Aug. 26, 1856	XVII.

16029	Smith, John C	Weaving long warps	Nov. 4, 1856	III.
14294	Smith, Joseph	Hubs for carriages	Feb. 19, 1856	X.
15046	Smith, Joseph	Raking and loading hay, machine for	June 3, 1856	I.
381	Smith, Joseph	Raking and loading hay, machine for	July 22, 1856	Reissue.
156	Smith, Joseph	Hubs for carriages	Dec. 16, 1856	Add'l impt.
16192	Smith, Lemuel	Lathes for irregular forms	Dec. 9, 1856	XIV.
359	Smith, L. S., assignor to B. Howard	Match-splints, machinery for splitting	Mar. 11, 1856	Reissue.
15625	Smith, Marvin	Apple parers	Aug. 26, 1856	XVII.
15444	Smith, Miron	Yokes, ox	July 29, 1856	I.
15711	Smith, R	Washing-machine	Sept. 9, 1856	XVII.
	Smith, R. M. (See Leeds, L. W.)			
15710	Smith, Robert A	Streets, sweeping, machine for	Sept. 9, 1856	IX.
14742	Smith, Thomas	Fire-arms, projectiles for	April 22, 1856	XIX.
14834	Smith, Willard H	Door-fastener	May 6, 1856	II.
15985	Smith, William H	Husking corn, machine for	Oct. 28, 1856	I.
14587	Smith, Wooster	Fishing-leads	April 1, 1856	XXII.
14206	Snider, John S	Saw-mills	Feb. 5, 1856	XIV.
14635	Snow, Martin	Spoke-shave	April 8, 1856	XIV.
14073	Snyder, John G	Seeding machines	Jan. 8, 1856	I.
15195	Soule, Charles R	Teeth, rake, machine for making	June 24, 1856	II.
15347	Soule, George H	Fire-arms	July 15, 1856	XIX.
	Soules, Isaac, and John Case. (See Case & Soules.)			
14297	Southwick, Masa Branch	Vegetables, for preservation, machines for preparing	Feb. 19, 1856	XVII.
14417	Soverel, Matthias	Axles, thills to, mode of securing	Mar. 11, 1856	X.
14578	Spalding, Henry C	Lathe	April 1, 1856	XIV.
	Sparks, Joseph, and James D. and J. M. Jeffers. (See Jeffers and Sparks and Jeffers.)			
15348	Speed, John J., jr., and John A. Bailey	Metal tubes, seamless, making	July 15, 1856	II.
14744	Speer, Alfred	Windows, &c., weather strip and lock for	April 22, 1856	IX.
16296	Spence, G. O	Melodeons	Dec. 23, 1856	XVIII.
14743	Spence, George S. G	Heating boilers, steam-pressure regulating apparatus for	April 22, 1856	V.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14521	Spencer, Albert	Hat bodies, machines for sizing	Mar. 25, 1856	III.
	Spencer, Albert, and A. E. Laing. (See Emmons, Phineas, assignor.)			
15786	Spencer, Isaac S	Threshing, grain, machine	Sept. 23, 1856	I.
15859	Spofford, Charles	Forms, irregular, machine for cutting	Oct. 7, 1856	XIV.
15497	Spooner, D. B., & H. B	Photographic pictures on glass, mode of coloring	Aug. 5, 1856	XVIII.
15021	Spooner, Lysander	Chairs and other articles, elastic bottoms for	June 3, 1856	XVII.
14674	Sprague, Alexander McD	Furnaces with fuel, apparatus for feeding	April 15, 1856	V.
15533	Sprague, Andrew	Harvesters, corn	Aug. 12, 1856	I.
	Sprague, Russell, Phelps, & Foote. (See Foote, Alvah, assignor.)			
14376	Squarza, Vincenzo	Candle dipping machines	Mar. 4, 1856	IV.
16318	Squire, John J	Rakes, hay	Dec. 23, 1856	I.
14214	Standing, John, assignor to himself and James Baxendale.	Printing machines, calico, movement for the doctors of.	Feb. 5, 1856	XVIII.
	Stanley, C. H. (See Surgey, assignor to Stanley.)			
	Stansbury, Geo. L. (See Samuels & Stansbury.)			
	Stansbury, Geo. L. (See Samuels & Stansbury.)			
	Stanton, John M. and Simon F., *et. al.* (See Glines, H. M.			
14780	Stanton, Simon F	Fire-arms, breech-loading	April 29, 1856	XIX.
15623	Stanton, Simon F., assignor to J. M. and S. F. Stanton.	Seine needles, filling, machinery for	Aug. 26, 1856	III.
14522	Staples, Solon	Clamp for planking ships	Mar. 25, 1856	XIV.
15442	Starbuck, G. H., and L. D. Gilman	Smut machine	July 29, 1856	XIII.
14118	Starr, Eben T	Fire-arms, revolving	Jan. 15, 1856	XIX.
14295	Starrett, James F	Printing from engraved plates, machine for	Feb. 19, 1856	XVIII.
14888	Starrett, John, and N. J. Wier	Stoves, gas	May 13, 1856	V.
16293	Staufen, Werner	Fibres, vegetable, preparing, for stuffing matresses and cushions.	Dec. 23, 1856	III.

	Watson. (See Schelly & Stauffer.)			
14700	Stearns, E. H.	Saw mills, head and tail blocks for	April 15, 1856	XIV.
14416	Stearns, Geo. N.	Boring and mortising machine	Mar. 11, 1856	XIV.
	Stedman, Benjamin S., and Wm. Fosket. (See Fosket & Stedman.)			
14418	Steers, Abraham	Extracts, apparatus for making	Mar. 11, 1856	IV.
14375	Steers, Abraham	Tanning apparatus	Mar. 4, 1856	XVI.
15258	Stephens, James	Curtain fixtures	July 1, 1856	XVII.
14580	Stephens, William	Valve gear of oscillating engines	April 1, 1856	VI.
16073	Sterling, W. G.	Gas-regulator	Nov. 11, 1856	V.
15619	Stetson, Alva M.	Amalgamator	Aug. 26, 1856	II.
14745	Stevens, A. H.	Corn-shellers	April 22, 1856	I.
16291	Stevens, Edgar M., assignor to E. Townsend	Corn-shellers	Dec. 23, 1856	I.
16101	Stevens, G. H.	Boring and mortising machine	Nov. 11, 1856	XIV.
	Stevens, Miner, & Saunders. (See Miner, Stevens, & Saunders.)			
15269	Stevens, Oliver P.	Hulling and scouring grain, seed, &c., machines for	July 1, 1856	I.
14419	Stevens, Robert L.	Valves of steam engines, slide, means for reducing the friction of.	Mar. 11, 1856	VI.
14974	Stevenson, William J	Preserve vessels, self-sealing	May 27, 1856	XVII.
15395	Stever, J.	Ships, pendulum-pumps for, arrangement of means in.	July 22, 1856	VII.
15260	Stewart, J. A.	Planters, cotton seed	July 1, 1856	I.
	Stewart, John, and William H. Tristler. (See Tristler & Stewart)			
15199	Stewart, V. R.	Washing-machines	June 24, 1856	XVII.
	Stigleman & Ogborn. (See Taylor, George, assignor.)			
14523	Stillman, O. M., and Stephen Wilcox, jr.	Boilers, steam	Mar. 25, 1856	VI.
	Stillman, Samuel N. (See Bevin, Julius.)			
14837	Stimson, Enos	Sowing seed broadcast, machines for	May 6, 1856	I.
	St. John, Burr, Wright, & Riblet. (See Wells, Henry A., assignor.)			
	St. John, Burr, Wright, & Riblet. (See Wells, Henry A., assignor.)			
15709	St. John, John R.	Wind-mills	Sept. 9, 1856	XI.
16252	St. John, Thaddeus F.	Wiring blind rods, machine for	Dec 16, 1856	II.
16075	St. John, William F.	Gas retort fastening, coppering	Nov. 11, 1856	IV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15824	Stocker, Amos	Tailors' measures	Sept. 30, 1856	XXI.
15672	Stoddard, O	Harvesters, grain and grass	Sept. 2, 1856	I.
15047	Stoddard, Oren	Husking corn, machines for	June 3, 1856	I.
14071	Stoddard, William	Mortising machines	Jan. 8, 1856	XIV.
15788	Stone, Amasa	Bottles and other vessels made from plastic substances, tool for forming grooves around the orifice of.	Sept. 23, 1856	XXII.
14070	Stone, Gustavus	Mowing machines, blades of	Jan. 8, 1856	I.
16151	Stone, Harley, and Mason D. Cole	Tap, expanding	Dec. 2, 1856	II.
14420	Storm, Wm. Mt.	Fire-arms, revolving	Mar. 11, 1856	XIX.
15090	Storm, Wm. Montgomery	Ships and other vessels, safes for	June 10, 1856	VII.
15259	Storm, William M	Steam-pressure indicators and regulators	July 1, 1856	VI.
15307	Storm, Wm. Mt	Fire-arms, breech-loading	July 8, 1856	XIX.
	Stott, Pittock, & Richmond. (See Pittock, Stott, & Richmond)			
	Stout, T. B., *et al.* (See Marsh, David.)			
16074	Stout, Thomas B	Mill-stone dress	Nov. 11, 1856	XIII.
16249	Stout, Thomas B	Mill, grinding	Dec. 16, 1856	XIII.
14421	Stover, Henry D., and J. W. Bicknell	Forms, irregular, machine for cutting	Mar. 11, 1856	XIV.
	Stow and Shepherd. (See Shepherd & Stow.)			
15593	Stowell, Abijah D., assignor to John A. Place	Wheelwright's machine	Aug. 19, 1856	XIV.
16295	Stowell, John	Saws, reciprocating gig, method of hanging	Dec. 23, 1856	XIV.
14579	Stratton, Ezra M	Axle boxes for carriages	April 1, 1856	X.
14432	Stratton, Lorenzo, assignor to himself and Luther Hill.	Boot and shoe soles, manufacture of	Mar. 11, 1856	XVI.
	Stratton & Massey. (See Allen, John F., assignor.)			
14117	Stratton, T. J	Ditching machines	Jan. 15, 1856	IX.
14072	Straub, Abraham	Marble obelisks, machines for sawing	Jan. 8, 1856	XV.
14119	Strong, Francis M , and Thomas Ross	Scales, platform	Jan. 15, 1856	XII.
16289	Strouse, S. H., and J	Shirts	Dec. 23, 1856	XXI.
	Stuart, Cresson, and Peterson. (See Beesley and Delany.)			

14033	Stubblefield, Thomas	*Boiler, steam, alarms*	Jan.	1, 1856	VI.
14942	Stuber, John, assignor to John Carton	Lamps, locomotive and railroad	May	20, 1856	V.
14524	Stull, John	Syringe bottles for medicinal agents	Mar.	25, 1856	XX.
15866	Sturtevant, B. F, assignor to E. Townsend	Boots and shoes, pincers for lasting	Oct.	7, 1856	XVI.
14678	Summers, Joseph	Hub, wheel	April	15, 1856	X.
15826	Summers, S. F	Trunks	Sept.	30, 1856	XVI.
16200	Surgey, William Palmer, assignor to Chas. Henry Stanley.	Cigars	Dec.	9, 1856	XXII.
14120	Sutherland, Abner J	Yarn-dressing frames	Jan.	15, 1856	III.
14525	Sweeny, A. I	Water meter	Mar.	25, 1856	XI.
	Swetland & Little. (See Vedder and Sanderson, assignors.)				
	Swetland & Little. (See Vedder and Sanderson, assignors.)				
	Swetland & Little. (See Vedder and Ripley, assignors.)				
15349	Swift, George W	Threshing and cleaning grain in the field, machines for.	July	15, 1856	I.
14207	Swingle, Alfred, assignor to Elmer Townsend	Sewing machines	Feb.	5, 1856	III.
14269	Swingle, Alfred, assignor to Elmer Townsend	Boots and shoes, pegging	Feb.	12, 1856	XVI.
15396	Swingle, A., assignor to E. Townsend	Sewing machines	July	22, 1856	III.
15462	Swingle, A., assignor to E. Townsend	Pegging jacks	July	29, 1856	XVI.
410	Swingle, A, assignor to E. Townsend	Sewing machines	Nov.	4, 1856	III.
14258	Taft, Timothy F	Bolt machine	Feb.	12, 1856	II.
14933	Taggart, John	Excavating scoops	May	20, 1856	IX.
15200	Taggart, John	Buoy, tidal alarm	June	24, 1856	VII.
16201	Taggart, John, and Leonard A. Grover, assignors to Taggart, Grover & Banker.	Husking corn, machines for	Dec.	9, 1856	I.
15723	Taggart, John, assignor to himself and Vernon Brown.	Smoothing irons, furnace	Sept.	9, 1856	XVII.
16076	Taggart, William	Projectile for fire-arms	Nov.	11, 1856	XIX.
15673	Taillant, C. L	Chairs, invalid	Sept.	2, 1856	XVII.
15907	Talbot, G H	Gimlet handles	Oct.	14, 1856	II.
14377	Tallcott, D. & G	Ships' capstans	Mar.	4, 1856	VII.
14986	Tallcott, Daniel and George	Ships' capstans	May	27, 1856	VII.
15350	Tarbox, Hiram, 2d	Cattle stall	July	15, 1856	I.
14679	Tatum, Joel H	Photographic impressions, preparation of oil ground to receive.	April	15, 1856	XVIII.
368	Tatum, Joel H	Photographic impressions, preparation of oil ground to receive.	May	13, 1856	Reissue.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14476	Taylor, Alvah B	Hat bodies, machinery for making	April 18, 1856	III.
15443	Taylor, Alvah B	Hat bodies, machinery for forming	July 29, 1856	III.
15534	Taylor, Alvah B	Hat bodies, manufacture of	Aug. 12, 1856	III.
14259	Taylor, Benjamin	Corn, green, instrument for grating	Feb. 12, 1856	XVII.
15213	Taylor, George, assignor to H. Ogborn and George W. Stigleman.	Gate, farm	June 24, 1856	IX.
14121	Taylor, James S	Hats, felting, machinery for	Jan. 15, 1856	III.
14845	Taylor, James S	Hat bodies, machinery for felting	May 6, 1856	III.
15903	Taylor, James S	Hat bodies, machinery for forming	Oct. 14, 1856	III.
	Taylor, Samuel	Warps, dressing, manner of constructing brushes for.	May 22, 1856	Extension.
15306	Taylor, Samuel	Warps, dressing, brushes for	July 8, 1856	III.
15535	Taylor, Thomas W	Spinning frames	Aug. 12, 1856	III.
15351	Teal, Peter	Coupling shaft, detachable	July 15, 1856	X.
15153	Tear, John	Forms, irregular, method of operating cutters in their head for.	June 17, 1856	XIV.
14327	Temple, James	Boring-machine	Feb. 26, 1856	XIV.
14215	Terrel, Charles C., assignor to himself and S. Crawford.	Cannon, many chambered breech-loading	Feb. 5, 1856	XIX.
14208	Terry, Harriet V., administratrix of William D. Terry, deceased.	Buildings, cast-iron, mode of constructing	Feb. 5, 1856	IX.
15091	Terry, J. B	Pins, machine for sticking	June 10, 1856	II.
15536	Thatcher, George W	Chimney-cowl	Aug. 12, 1856	V.
14422	Thayer, Pliny	Harvester-cutters	Mar. 11, 1856	I.
14781	Thayer, Pliny	Reaping machines	April 29, 1856	I.
15583	Thickins, R. W	Vice	Aug. 19, 1856	II.
16129	Thieme, Charles F	Gas-cock and swing joint	Nov. 25, 1856	IV.
14171	Thomas, Charles F	Chimney-cowls	Jan. 29, 1856	V.
14423	Thomas, John B	Plane, stock	Mar. 11, 1856	XIV.
15154	Thomas, Joseph	Hat-bodies, sizing, machines for	June 17, 1856	III.
15261	Thomas, Joseph	Hat-bodies, felting, machinery for	July 1, 1856	III.
15627	Thomas, Joseph	Hat-bodies, felting, machinery for	Aug. 26, 1856	III.

14477	Thomas, William P	Harness for shoeing horses	Mar. 18, 1856	XVI.
16195	Thompson, Anson	Seeds in the earth, implements for rolling	Dec. 9, 1856	I.
14538	Thompson, D. H	Raking and loading hay, machines for	Mar. 25, 1856	I.
15957	Thompson, George	Alkalies, caustic, devices for putting up	Oct. 21, 1856	IV.
15352	Thompson, Hiram, & Richard Q. Tuson	Mop-heads	July 15, 1856	XVII.
14035	Thompson, Ira F	Vessels, velocimeters for	Jan. 1, 1856	VII.
14328	Thompson, Ira F	Vessels, velocimeters for	Feb. 26, 1856	VII.
761	Thompson, James M	Bricks, moulded	Feb. 12, 1856	Design.
15986	Thompson, James M	Cans, oil	Oct. 28, 1856	V.
15354	Thompson, John W	Mowing-machines	July 15, 1856	I.
	Thompson, Kimball, & Buck. (See Buck, Joab, assignor.)			
	Thompson, M. Minthorne. (See Everett, Wm E., and M. M. Thompson.)			
15498	Thompson, Meriwether, jr	Hemp-breaker	Aug. 5, 1856	III.
398	Thompson, Moses	Furnaces for burning wet fuel	Oct. 7, 1856	Reissue.
14932	Thompson, Nathan, jr	Engines, steam, surface condensers for	May 20, 1856	VI.
15674	Thompson, Shelton M	Straw-cutters	Sept. 2, 1856	I.
14260	Thompson, Thomas	Paper, &c., folding, machine for	Feb. 12, 1856	XVIII.
15537	Thompson, W. O., and L. Harrington	Stumps, extracting, mode of	Aug. 12, 1856	IX.
15201	Thompson, Wm. H., and Eustis P. Morgan	Houses, ware, safety-hatches for	June 24, 1856	IX.
15092	Thompson, William R	Wheels, railway car, constructing	June 10, 1856	X.
15787	Thorpe, Franklin	Churns	Sept. 23, 1856	I.
	Thursby, William S. (See Pratt, William S., assignor.)			
	Tiedeman, D. F., *et al.* (See Huygens, George W. O., assignor.)			
15828	Tiffany, David B	Pillows and bolsters into their cases, implement for putting.	Sept. 30, 1856	XVII.
15626	Tillotson, Loyall	Cupping	Aug. 26, 1856	XX.
14378	Tilton, Wm. B	Guitars	Mar. 4, 1856	XVIII.
15152	Tilton, W. S	Harvesters, corn	June 17, 1856	I.
	Tingley & Viele (See Brown, Albert H., assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15582	Tinker, Wm	Harvesters	Aug. 19, 1856	I.
16194	Tinker, Wm	Harvesters	Dec. 9, 1856	I.
	Tinkham, Samuel M. (See Crane, Charles S. C., assignor.)			
16041	Tippett, Alfred	Tenoning, etc, tool for	Nov. 4, 1856	XIV.
14261	Titus, Wm. D	Oil-box for axles, with conical journals	Feb. 12, 1856	XII.
14680	Titus, Wm. D	Vault covers	April 15, 1856	IX.
16128	Todd, George C	Boot and shoe soles, edges of, edge keys for making and polishing.	Nov. 25, 1856	XVI.
15748	Tolhurt, G. W	Harvesting-machines	Sept. 16, 1856	I.
15024	Toll, John A	Marble sawing machine	June 3, 1856	XV.
15713	Toll, Jose	Marble sawing machines	Sept. 9, 1856	XV.
413	Toll, Jose	Marble sawing machine	Dec. 9, 1856	Reissue.
132	Tomlinson, O. B	Cloth, ornamental felt, manufacture of	Feb. 5, 1856	Add'l imp't.
16297	Tompkins, Clark	Knitting-machines	Dec. 23, 1856	III.
14975	Tompkins, Clark, and John Johnson	Knitting-machines, rotary	May 27, 1856	III.
14122	Tompkins, Joseph H	Daguerreotype plates, box for coating	Jan. 15, 1856	XVIII.
	Torrance, Mann, & Co. (See Vedder, N. S., assignor.)			
15353	Torrey, H. H	Washing-machine	July 15, 1856	XVII.
15998	Torstrick, Henry	India-rubber, vulcanized, working over	Oct. 28, 1856	IV.
14262	Towers, Wm. H	Clothes clamp	Feb. 12, 1856	XVII.
14527	Towers, William H	Creepers to prevent slipping on ice, &c	Mar. 25, 1856	XXII.
14263	Towne, Loison D	Planing-machines, cutter-heads for	Feb. 12, 1856	XIV.
	Towne, Wm. J., *et al.* (See Magee, John, assignor.)			
	Townsend, E. (See Swingle, A., assignor.)			
	Townsend, E. (See Swingle, A., assignor.)			
	Townsend, E., *et al.* (See Sturtevant, B. F., assignor.)			
	Townsend, Elmer. (See Swingle, Alfred, assignor.)			
	Townsend, Elmer. (See Swingle, Alfred, assignor.)			
	Townsend, Elmer. (See Turner, Sidney S., ass'r.)			

15789	Townsend, G. G. Townsend & Turner. (See Turner, Sidney, assignor.)	Gauges, feather-edge	Sept. 23, 1856	XVI.
14424	Tracy, Erastus	Wrench	Mar. 11, 1856	II.
14209	Trask, S. J.	Locks, alarm	Feb. 5, 1856	II.
14889	Treadwell, F. C., jr.	Crackers, moulding, machines for preparing dough for.	May 13, 1856	XVII.
	Treadwell, Perry, & Norton. (See Gibbs, Samuel W., assignor.)			
	Treadwell, Perry, & Norton. (See Pratt, Sam'l F., assignor.)			
	Treadwell, Perry, & Norton. (See Pratt, Sam'l F., assignor.)			
	Treadwell, Perry, & Norton. (See Pratt, Sam'l F., assignor.)			
15023	Treadwell, Wm. B.	Stoves, cooking	June 3, 1856	V.
	Treadwell, W. and J., and Perry & Norton. (See Gibbs, S W., assignor.)			
	Treadwell, W. and J., and Perry & Norton. (See Gibbs, Sam'l W , assignor.)			
14681	Trimmer, Benj T.	Brake, railroad	April 15, 1856	X.
15988	Trissler, Wm H., and John Stewart	Roofs, sheet-metal coverings to, mode of securing	Oct. 28, 1856	IX.
15712	Trott, Geo., R. H. Coles, and Wm. A. Clark	Hydraulic puppet valves, method of suspending	Sept. 9, 1856	XI.
15048	Truesdell, Lucius E.	Bridges, lattice	June 3, 1856	IX.
15362	Truslow, John W.	Fenders for fire-places	July 15, 1856	V.
153	Truslow, John W.	Fenders for fire-places	Sept. 30, 1856	Add'l impt.
16032	Trussell, Richard	Saddles, riding, stirrups for	Nov. 4, 1856	XVI.
14210	Tufts, Otis	Shafts, wrought-iron, making	Feb. 5, 1856	XII.
15025	Tufts, Otis	Valves, operating, of steam-engines	June 3, 1856	VI.
14581	Tufts, S. G.	Fence, field	April 1, 1856	IX.
15749	Tupper, D. D.	Shingle machine	Sept. 16, 1856	XIV.
16216	Turley, Marshall	Plows, prairie	Dec. 9, 1856	I.
14040	Turner, J., jr., assignor to W. Covell	Shoe-bindings, manufacture of leather	Jan. 1, 1856	XVI.
363	Turner, Sidney S , assignor to Elmer Townsend	Sewing-machines	Mar. 25, 1856	Reissue.
15941	Turner, Sidney S., assignor to himself and Elmer Townsend.	Mackarel, splitting, machine for	Oct. 21, 1856	XXII.
	Turton, T., and J. M. Colman. (See Colman, J. M., and T. Turton.)			
	Tuson, Richard Q., and Hiram Thompson. (See Thompson & Tuson.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15093	Tuttle, Edward A	Registers and ventilators	June 10, 1856	V.
15904	Tuttle, John L	Cotton-gins and machine cards, manufacturing cylinders for.	Oct. 14, 1856	III.
15905	Tuttle, John L	Card teeth for machine cards	Oct. 14, 1856	III.
15906	Tuttle, John L	Cotton-gins	Oct. 14, 1856	III.
15987	Twiford, William B	Wagon, dumping	Oct. 28, 1856	X.
14814	Tyer, Henry G., and John Helm	Gum elastic cloth, making	May 6, 1856	IV.
	Tyler, C. N., and John C. Mellar. (See Mellar & Tyler.)			
15958	Tyler, C. N., assignor to H. Pardin	Washing-machines	Oct. 21, 1856	XVII.
16027	Tyler, David M	Water-wheels, method of starting and stopping	Nov. 4, 1856	XI.
15309	Tyler, John	Water-wheel	July 8, 1856	XI.
14172	Tyler, P. B	Saw-plates, teeth to, method of attaching	Jan. 29, 1856	XIV.
15902	Tyler, P. B	Caster-wheel for furniture, finishing	Oct. 14, 1856	XVII.
14976	Uchatius, Franz	Steel, making	June 2, 1856	II.
14782	Underwood, Alex	Matches, friction, machine for manufacturing	April 29, 1856	XXII.
16212	Underwood, John	Engines, hydraulic and steam, cylinder and piston of.	Dec. 9, 1856	VI.
14636	Updegraff, Edward J	Wood, machine for bending	April 8, 1856	XIV.
	Upton, H. P. (See Pratt, Elisha, assignor.)			
14891	Van Amringe, John	Fire and escape ladder	May 13, 1856	V.
386	Van Anden, William, assignor to the American Railroad Chair Manufacturing Co., assignors to A. Frear, J. Brown, and William Van Anden.	Railroad chairs, wrought-iron, machine for making	Aug. 12, 1856	Reissue.
14478	Van Bunscorten, Isaac	Lamps, argand, for burning rosin-oil	Mar. 18, 1856	V.
753	Vance, S. B. H., assignor to Mitchell, Bailey, & Co.	Pendants, hall	Jan. 2, 1856	Design.
754	Vance, Samuel B. H., assignor to Mitchell, Bailey, & Co.	Pendants, or chandeliers, hall	Jan 2, 1856	Design.
777	Vance, Samuel B. H, assignor to Mitchell, Bailey, & Co.	Chandeliers	April 8, 1856	Design.
778	Vance, Samuel B. H., assignor to Mitchell, Bailey, & Co.	Chandeliers	April 8, 1856	Design.

[illegible]	[illegible]	[illegible]	[illegible]		XXII.
	Van Horn, Abner. (See Thomas, Wm., assignor.)				
15538	Van Horn, Chester	Metal, planing	Aug.	12, 1856	II.
15829	Varney, Thomas	Lamps, hydro-carbon vapor	Sept.	30, 1856	V.
	Vaughan, Ebenezer, and W. S. Bartle. (See Bartle & Vaughan.)				
15161	Vaughn, Horace	Compositions for working steel	June	17, 1856	IV.
924	Vedder, N. S., assignor to Cox, Richardson, and Boynton.	Stoves, cooking	Aug.	19, 1856	Design.
821	Vedder, N. S., assignor to G. F. Filley	Stove-plates	Aug.	5, 1856	Design.
843	Vedder, N. S., assignor to Graff, Reisinger, & Graff.	Stoves, cooking	Oct.	7, 1856	Design.
842	Vedder, N. S., assignor to Mann, Torrance, & Co.	Stove-plates, cooking	Oct.	7, 1856	Design.
825	Vedder, N. S., and Ezra Ripley, assignors to Cox, Richardson, & Boynton.	Stoves, cooking	Aug.	19, 1856	Design.
827	Vedder, N. S., and E. Ripley, assignors to Swetland & Little.	Stoves, six-plate	Aug.	26, 1856	Design.
	Vedder & Sanderson. (See Sanderson & Vedder, assignors to Sanders, Wolfe, & Warren.)				
846	Vedder, N. S., and W. L. Sanderson, assignors to G. W. Eddy.	Stoves, cooks'	Oct.	21, 1856	Design.
810	Vedder, N. S., and Wm. L. Sanderson, assignors to North, Chase, & North.	Stoves	June	24, 1856	Design.
839	Vedder, N. S., and Wm. L. Sanderson, assignors to North, Chase, & North.	Stoves	Oct.	7, 1856	Design.
779	Vedder, N. S., and Wm. L. Sanderson, assignors to Sanders, Wolfe, & Warren	Stoves, parlor	April	8, 1856	Design.
828	Vedder, N. S., and W. L. Sanderson, assignors to Swetland & Little.	Stoves, cooking	Aug.	26, 1856	Design.
829	Vedder, N. S., and W. L. Sanderson, assignors to Swetland & Little.	Stoves, cooking	Aug.	26, 1856	Design.
790	Vedder, N. S., and W. L. Sanderson, assignors to N. S. Vedder.	Stoves, parlor	May	13, 1856	Design.
	Vergennes Scale Manufacturing Company. (See Sampson, E., assignor.)				
14682	Vergnes, Maurice	Engines, electro-magnetic	April	15, 1856	VIII.
16203	Vertrees, William A.	Churns	Dec.	9, 1856	I.
	Vile & Tingley. (See Brown, Albert H., assignor.)				

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Volcanic Repeating Arms' Company. (See Smith, Horace, and D. B. Wesson.)			
	Von Kammerhueber, W. J. (See Schragg & Von Kammerhueber.)			
15359	Von Kammerhueber, W. Jose	Centrolineads	July 16, 1856	VIII.
14747	Vose, Richard	Axles, dividend, for railroad cars	April 22, 1856	X.
768	Vose, Samuel D	Stoves, parlor	Mar. 4, 1856	Design.
15026	Vrooman, H. S	Sawing-machine	June 3, 1856	XIV.
15204	Wagner, Cyril B	Harvesters	June 24, 1856	I.
15205	Wagner, Cyril B	Harvesters, cutting apparatus for	June 24, 1856	I.
14485	Wagner, I. Z. A	Saws, reciprocating, method of adjusting	Mar. 18, 1856	XIV.
14621	Wait, P. H	Paper-machines, felt guide of	April 8, 1856	III.
14748	Waite, Chas. B., and Joseph W. Senor	Coffee-pots	April 22, 1856	XVII.
16034	Walbridge, A. S	Sawing-mills, self-acting head and tail blocks for	Nov. 4, 1856	XIV.
14546	Walcott, Halsey D., assignor to H. D. and M. E. Walcott.	Wrenches	Mar. 25, 1856	II.
15864	Walker, Alexander J	Door-springs, bracket for	Oct. 7, 1856	II.
	Walker, F. C., and J. W. Cormack. (See Cormack & Walker.)			
16154	Walker, Henry M	Siphon à clapet	Dec. 2, 1856	XI.
14934	Walker, Samuel H. and Matthew C	Gas retort cleaners	May 20, 1856	IV.
	Wall, A. Little O., and John Cole. (See Cole & Wall.)			
15836	Wallace, James, jr	Bleaching, washing and, use of the dash-wheel for	Sept. 30, 1856	III.
15835	Walsh, Henry, assignor to H. Walsh and M. B. Espy.	Corn, green, from the cob, separating	Sept. 30, 1856	XVII.
14838	Walter, Wm. P., and Jacob Green	Glass, molten, ladling of	May 6, 1856	XV.
15445	Walton, G. W., and H. Edgarton	Forms, ellipsoidal, method of turning	July 29, 1856	XIV.
16196	Walton, W. H	Carding-engines, cleaning the top-flats of	Dec. 9, 1856	III.
15268	Walton, Wm. H., assignor to W. H. Walton and J. E. Winants.	Wool, combing, machinery for	July 1, 1856	III.
15860	Walworth, Caleb C	Pipe-fittings, gas, machine for finishing	Oct. 7, 1856	I

15862	Walworth, Caleb C	Vice	Oct.	7,	1856	
14839	Ward, A. F	Marble sawing-machines	May	6,	1856	II.
14037	Ward, Andrew H., jr	Compositions for breaking wool	Jan.	1,	1856	XV.
14479	Ward, Israel W	Boring-machines, adjustment in	Mar.	18,	1856	IV.
15262	Ward, James N	Fire-arms, magazine, hammer for	July	1,	1856	XIV.
15909	Ward, John C	Car, railroad, coupling	Oct.	14,	1856	XIX.
15630	Ward, Richard	Grain-cleaner and separator	Aug.	26,	1856	X.
14935	Ward, Thomas	Music-rack	May	20,	1856	XIII.
15861	Ward, William E	Nut-machines	Sept.	30,	1856	XVIII.
	Warden, W. (See Wightman, H., and W. Warden.)					II.
819	Wardwell, Benjamin, and Ephraim R. Barstow	Stoves, cooking	July	29,	1856	Design.
14783	Wardwell, Charles P. S	Box-openers	April	22,	1856	XXII.
16033	Wardwell, George J	Marble and stone, machine for sawing	Nov.	4,	1856	XV.
	Warfield, A. E. (See Smith, G. H. Brown, and J. A. Read, assignors.)					
	Warfield, A. E. (See Smith, G. H. Brown, and J. A. Read, assignors.)					
15908	Warlick, Noah	Vehicles, arrangement of the thills of	Oct.	14,	1856	X.
15993	Warlick, Noah	Harness, plow, back-band hook for	Oct.	28,	1856	XVI.
15027	Warner, Chapman	Filter	June	3,	1856	IX.
14683	Warner, Dewitt C	Wigs	April	15,	1856	XXI.
15202	Warner, James	Fire-arms	June	24,	1856	XIX.
15094	Warner, Philip	Shutters, bolt for	June	10,	1856	II.
16299	Warren, A. F	Pen, fountain	Dec.	23,	1856	XVIII.
14425	Warren, A. F., and C. M. H	Pen, fountain	Mar.	11,	1856	XVIII.
	Warren, Cox, Morrison, & Co. (See Pierce & Dulley, assignors.)					
	Warren, Cox, Morrison, & Co. (See Pierce & Burnam, assignors.)					
	Warren, Cox, Morrison & Co. (See Burnam & Sanford, assignors.)					
	Warren, Fuller, & Morrison. (See Pierce & Dulley, assignors.)					
	Warren, Fuller, & Morrison. (See Pierce & Dulley, assignors.)					
	Warren, Fuller, & Morrison. (See Dulley, James J., assignor.)					

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Warren, Sanders, & Wolf. (See Sanderson & Vedder, assignors.)			
	Warren, Wolf, and Sanders. (See Vedder & Sanderson.)			
16155	Warth, Albin	Motion, converting rotary into reciprocating	Dec. 2, 1856	XIII.
	Warwick, Atterbury, & Co. (See Knauer, Christian, assignor.)			
14528	Warwick, William	Wrenches	Mar. 25, 1856	II.
	Warwick, William, *et al.* (See Atterbury & Warwick, assignors.)			
14529	Washburn, A. W	Planters, cotton-seed	Mar. 25, 1856	I.
14539	Washburn, A. W	Hillers, cotton	Mar. 25, 1856	I.
14540	Washburn, A. W	Scrapers, cotton	Mar. 25, 1856	I.
15863	Washburn, G. I., and E. H. Bellows	Brick-machines	Oct. 7, 1856	XV.
15990	Washington, T. A	Fire-arms, breech-loading	Oct. 28, 1856	XIX.
14893	Waterman, Henry	Gas-regulators	May 13, 1856	V.
15584	Watkins, C. H	Chimney cowl, self-cleaning	Aug. 19, 1856	V.
	Watkinson & Slocum. (See Halvorson, Halvor, assignor.)			
15675	Watson, A	Table, self-waiting	Sept. 2, 1856	XVII.
14936	Watson, Edward S	Saw-set	May 20, 1856	XIV.
	Watson, P. H. (See Manny, John H., assignor.)			
	Watson, P. H. (See Manny, John H., assignor.)			
	Watson, William. (See Schelly & Stauffer, assignors.)			
14433	Watson, William C., assignor to Ira W. Gregory	Sewing-machines	Mar. 11, 1856	III.
16136	Watson, Wm. C., assignor to Watson, Wooster, & Knight.	Sewing-machines	Nov. 25, 1856	III.
16218	Watt, George	Plows	Dec. 9, 1856	I.
15446	Waymouth, A. D	Spools, manufacturing, machine for	July 29, 1856	XIV.
15447	Weaver, Cromwell P	Window-sash, hanging, mode of	July 29, 1856	IX.

	Weaver, Wm., and A. B. Smith. (See Smith & Weaver.)					
14334	Webb, Jacob M.	Coffee-pots	Feb.	26,	1856	XVII.
14173	Webber, Elbridge	Tree-nail machines, device in	Jan.	29,	1856	XIV.
15310	Webber, Elbridge	Turning-machine	July	9,	1856	XIV.
15792	Webster, Alonzo, and D. K. Bennett	Marble monuments, sawing tapering	Sept.	23,	1856	XV.
	Webster, A. J., *et al.* (See Shorey, John C., assignor.)					
	Webster, A. W., and Charles Frost. (See Frost & Webster.)					
14542	Webster, Justus, and Samuel H. Folsom	Printing cylinder	Mar.	25,	1856	XVIII.
	Weed, Charles, and Charles Parkhurst. (See Parkhurst & Weed.)					
15585	Weigert, Benjamin	Fabrics, textile, water-proofing	Aug.	19,	1856	III.
14179	Weis, Joseph	Mills, flouring	Jan.	29,	1856	XIII.
14481	Wellman, George	Carding-machines, stripping top-flats of	Mar.	18,	1856	III.
15715	Wells, D. G.	Hat-bodies, machinery for forming	Sept.	9,	1856	III.
396	Wells, Henry A., assignor to Charles St. John, H. A. Burr, A. H. Wright, and James M. Riblet.	Hat-bodies, making, machinery for	Sept.	30,	1856	Reissue.
400	Wells, Henry A., deceased, assignor to Charles St. John, Henry A. Burr, Albert H. Wright, and James M. Riblet.	Hat-bodies, manufacting	Oct.	7,	1856	Reissue.
14480	Wells, Hiram	Saw-spindles, circular, method of suspending	Mar.	18,	1856	XIV.
16298	Wells, Joseph	Lubricating spindle-steps	Dec.	23,	1856	IV.
15989	Wells, Moses D	Washing-machines	Oct.	28,	1856	XVII.
16219	Wells, Moses D	Seeding-machines	Dec.	9,	1856	I.
15832	Wells, Richard	Furnaces	Sept.	30,	1856	V.
14426	Wells, William, and Mellen Bray	Boots and shoes, soles of, machine for cutting out and "skiving" the, and also for cutting the "rands" therein.	Mar.	11,	1856	XVI.
14211	Wentworth, John B.	Leather, softening, machines for	Feb.	5,	1856	XVI.
15991	Wentz, Wm	Shaft-tugs	Oct.	28,	1856	X.
15267	Werner, C. F., and C. Deutschmann	Gas purifiers, dry lime	July	1,	1856	IV.
759	Wesche, Herman E., assignor to Robert Wood	Gates	Feb.	5,	1856	Design.
762	Wesche, Herman E., assignor to Robert Wood	Gates	Feb.	12,	1856	Design.
	Wesson, Daniel B. (See Smith, Horace, and D. B. Wesson, assignors.)					
16130	West, Uel, and Abner Mills	Condensers and heaters, tubular construction of	Nov.	25,	1856	VI.
16197	Westerfield, John J	Mouldings, curved, method of cutting	Dec.	9,	1856	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15397	Westerhood, Bernard H.	Fire-arms, trigger protector for	July 22, 1856	XIX.
755	Wetherill, Augustus E.	Bottles, perfumery	Jan. 8, 1856	Design.
15830	Wetherill, Samuel	Furnaces for zinc-white	Sept. 30, 1856	V.
15448	Wharton, Joseph	Zinc-white, oxide of, apparatus for purifying	July 29, 1856	IV.
15311	Wheeler, C., jr.	Harvesters, raking attachment for	Sept. 2, 1856	I.
15677	Wheeler, C., jr.	Harvesters, cutting device for	Sept. 2, 1856	I.
15449	Wheeler, C. B., and A. Bascom	Harvesters, clover seed	July 29, 1856	I.
	Wheeler, D., and J. B. Fayette. (See Fayette & Wheeler.)			
15028	Wheeler, Marshal	Gas regulators	June 3, 1856	V.
15095	Wheeler, Marshal	Engines, steam, governor for	June 10, 1856	VI.
	Wheeler, Moses H. (See Green & Wheeler.)			
815	Wheeler, Russel, and Stephen A. Bailey	Ovens, parlor	July 8, 1856	Design.
836	Wheeler, Russel, and Stephen A. Bailey	Stoves, coal, cylindrical	Oct. 7, 1856	Design.
15450	Wheelock, Benjamin F.	Sad-iron heaters	July 29, 1856	XVII.
15155	Wheelock, Jesse D.	Bakers, heating coal	June 10, 1856	V.
371	Whipple, Cullen	Screws, wood, machine for cutting the threads of	June 13, 1856	Reissue.
14041	Whipple, Cullen, assignor to New England Screw Company.	Screw machinery	Jan. 1, 1856	II.
15052	Whipple, Cullen, assignor to New England Screw Company.	Screws, making	June 3, 1856	II.
	Whipple, Cullen, assignor to New England Screw Company, assignors to Cullen Whipple.	Screws, wood, machine for cutting the threads of	Aug. 16, 1856	Extension.
14329	Whipple, Heman	Braces in carpentry, instruments for measuring the lengths of.	Feb. 26, 1856	XIV.
15867	Whipple, M. D., assignor to A. B. Ely	Files, round, cutting	Oct. 7, 1856	II.
15912	Whipple, Stephen A., and Heman Whipple	Emery wheels, cleaning, machine for	Oct. 14, 1856	II.
14784	Whitaker, John T.	Harvesters, self-rakers for	April 29, 1856	I.
14264	Whitcomb, James	Switch, railroad	Feb. 12, 1856	IX.
15490	White, Francis A.	Leather, stuffing, methods of	Aug. 6, 1856	XVI.
14977	White, Harry	Shingle-machine	May 27, 1856	XIV.
15398	White, Harry	Riving equal pieces from a block, method of	July 29, 1856	XIV.

16157	White, Job	[illegible] scarfs from.	[illegible], 1856		XIV.
16133	White, J. Claude, and Robert Hay	Coal, hoisting, apparatus for	Nov.	25, 1856	IX.
14123	White, Lewis	Curtain fixtures	Jan.	15, 1856	XVII.
	Whitehead, E. W. (See Miller & Whitehead.)				
15751	Whitehead, J.	Harvesters, self-acting rakes for	Sept.	16, 1856	I.
16156	Whitehead, Jesse	Rakes, self-acting, for harvesting machines	Dec.	2, 1856	I.
14074	Whiteley, Abner	Candlesticks	Jan.	10, 1856	V.
341	Whiteley, Abner	Harvesters, grass, track-clearers to	Jan.	10, 1856	Reissue.
14212	Whiteley, Abner	Harvesters, grain and grass	Feb.	5, 1856	I.
133	Whiteley, Abner	Candlesticks	Feb.	5, 1856	Add'l imp't.
14213	Whiteley, Abner	Belt-fastenings	Feb.	5, 1856	XII.
14428	Whiteley, Abner	Harvesters, grain and grass	Mar.	11, 1856	I.
358	Whiteley, Abner	Harvesters, grain and grass	Mar.	11, 1856	Reissue.
14541	Whiteley, Abner	Harvesters, grain and grass	Mar.	25, 1856	I.
14622	Whiteley, Edward	Cooking by steam, boilers for	April	8, 1856	V.
15156	Whiteley, Edward	Cooking apparatus, water-heaters surrounding fire-pots in.	June	17, 1856	V.
16131	Whiteley, W., jr.	Harvesters, raking attachment for	Nov.	25, 1856	I.
	Whiting, J. S., and O. G. Auld. (See Auld & Whiting.)				
14379	Whitley, Andrew L.	Saws, circular, method of adjusting	Mar.	4, 1856	XIV.
15714	Whitman, Ephraim	Wind-mill	Sept.	9, 1856	XI.
15629	Whitman, Wm. H.	Milking cows, implement for	Aug.	26, 1856	I.
15547	Whitmarsh, Samuel, assignor to Wm. I. Demorest.	Lamps, vapor burning	Aug.	12, 1856	V.
	Whitworth, Joseph	Streets, sweeping and cleaning, machine for	July	21, 1856	Extension.
14080	Whorf, S. H., assignor to himself and Charles Rice.	Boots and shoes, manufacture of	Jan.	8, 1856	XVI.
14380	Whorf, S. H., and Charles Rice	Boots and shoes, application of soles to, by means of pressure and gutta-percha or other cement.	Mar.	4, 1856	XVI.
15750	Wickersham, John B.	Iron-fence, posts and ties, construction of	Sept.	16, 1856	II.
858	Wickersham, John B.	Bedsteads, metallic	Dec.	23, 1856	Design.
15363	Wickersham, William	Filtering medium	July	15, 1856	XI.
	Wiener, S. (See Falkenau, M., M. Pollak, and S. Wiener.)				
	Wier & Starrett. (See Starrett & Wier.)				
14988	Wier, Wm. W., and W. Grover	Mules, self-acting	May	27, 1856	III.
15676	Wieterich, Ferdinand, and Conrad Hagen	Curtain fixtures	Sept.	2, 1856	XVII.
14427	Wight, Edwin	Dove-tailing machine	Mar.	11, 1856	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
14038	Wight, H. C.	Planing-machine, arrangement of feed-rollers for	Jan. 1, 1856	XIV.
14482	Wight, Lyman	Spinning wheels	Mar. 18, 1856	III.
16077	Wight, Reuben	Doors, weather-strips for	Nov. 11, 1856	IX.
14124	Wightman, H., and W. Warden	Engines, oscillating	Jan. 15, 1856	VI.
15536	Wilbur, Greenleaf A.	Grapple for raising sunken bodies	Aug. 19, 1856	VII.
15938	Wilbur, P. A.	Nail-plate, feeding	Oct. 21, 1856	II.
15910	Wilbur, P. A.	Nail-machines	Oct. 14, 1856	II.
14685	Wilcox, Geo. P., and Wm. Butler	Phrenology, apparatus for teaching	April 15, 1856	XXII.
15992	Wilcox, John	Pens, metallic	Oct. 28, 1856	XVIII.
15831	Wilcox, O. D.	Legs, artificial	Sept. 30, 1856	XX.
	Wilcox, Stephen, jr. (See Stillman & Wilcox.)			
15451	Wilder, Jas. W.	Boots and shoes, cutting out, machines for	July 29, 1856	XVI.
14840	Wilder, Robert M.	Shears, sheep	May 6, 1856	I.
14701	Wilder, Shubael	Puddle-ball squeezer	April 15, 1856	II.
14298	Wildman, Russell	Furnaces for heating slugs for the use of hatters, tailors, and others.	Feb. 19, 1856	V.
14330	Wildman, Russell	Hats, hardening, machinery for	Feb. 26, 1856	III
15108	Wiles, Thomas	Straw-cutters	June 10, 1856	I.
	Wiley, James. (See Brown & Wiley.)			
	Wilkinson, Jeptha A.	Printing presses	Sept. 17, 1856	Extension.
15539	Willard, Charles W. and John P.	Hammers, valve gear for steam	Aug. 12, 1856	VI.
14841	Willard, George, assignor to himself and N. W. C. Jameson.	Car, railroad, seats	May 6, 1856	X.
14894	Willard, Hosea	Seeding-machines	May 13, 1856	I.
16081	Willey, John F., assignor to himself, Benjamin F. Merrill, and Thomas Phillips.	Excavator	Nov. 11, 1856	IX.
15587	Williams, Clarendon	Boring artesian wells, apparatus for	Aug. 19, 1856	IX.
16106	Williams, C. W.	Tailors' pressing-machines	Nov. 18, 1856	XXI.
	Williams & Grinnell. (See Grinnell & Williams.)			
	[illegible]	Tanning, pre- compositions	June 17, 1856	XVI.

414	Wilson, A. B.	Sewing-machines	Dec. 9, 1856	Reissue.
16300	Wilson, Allen B	Rests, head, portable	Dec. 23, 1856	X.
14483	Wilson, Charles	Tunnelling rocks, machine for	Mar. 18, 1856	IX.
835	Wilson, Daniel	Stoves, cooking	Oct. 7, 1856	Design.
15158	Wilson, George F., and George Payne	Fats, saponifying	June 17, 1856	IV.
14892	Wilson, James	Furnace for heating soldering irons	May 13, 1856	V.
14484	Wilson, Jas. H, jr	Vehicles, harnesses and thills of, safety apparatus to be applied to.	Mar. 18, 1856	X.
	Wilson, John W., and Josiah Mumford. (See Mumford & Wilson.)			
14785	Wilt, Samuel, and Geo. W. Albaugh	Planters, corn	April 29, 1856	I.
14216	Wimley, John M., assignor to John M. Wimley and W. H. Penrose.	Boots and shoes, composition soles to, mode of attaching.	Feb. 5, 1856	XVI.
14174	Winans, Thomas	Wagons, buggy	Jan. 29, 1856	X.
	Winants, I. E., and W. H. Walton. (See Walton, W. H., assignor.)			
15312	Winder, Daniel K	Printing press, hand	July 9, 1856	XVIII.
15631	Winegar, Caleb	Gates, farm, method of operating	Aug. 26, 1856	IX.
	Wing, C. J., and Lynahon, assignors. (See Lynahon & Wing, assignors.)			
	Winn, I. D., and N. S. Lockwood. (See Lockwood & Winn.)			
16320	Winship, Charles	Refrigerators	Dec. 23, 1856	XVII.
15206	Winslow, S. E	Cans, safety, for burning fluids	June 24, 1856	V.
	Winsted Auger Company. (See Curtis, Kelsey, assignor.)			
14978	Winter, Herman	Valve-gear for steam-engines	May 27, 1856	VI.
	Wisner, Joel. (See Bradley, Robert P., assignor.)			
16158	Witherell, Orin O	Wrenches	Dec. 2, 1856	II.
15355	Witherle, John B	Coupling, car	July 15, 1856	X.
14623	Wolcott, Anson	Springs, surface, method of treating	April 8, 1856	XI.
14702	Wolcott, R. F	Scales, weighing	April 15, 1856	XII.
	Wolfe, Sanders, & Warren. (See Sanderson & Vedder, assignors.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
15678	Yocum, Samuel H	Boring hubs for boxes, method of	Sept. 2, 1856	XIV.
14036	Yost, George W. N	Harvesters, grain, binders for	Jan. 1, 1856	I.
14076	Yost, George W. N	Harvesters, corn	Jan. 8, 1856	I.
14266	Yost, George W. N	Harvesters, grain and grass	Feb. 12, 1856	I.
	Yost, George W. N. (See Clark & Yost.)			
140	Yost, George W. N	Harvesters, grain, binders for	April 8, 1856	Add'l imp't.
14582	Yost, George W. N	Harvesters, grain and grass	April 1, 1856	I.
15049	Yost, George W. N	Wheels, driving, for steam-drags or propellers	June 3, 1856	X.
15050	Yost, George W. N	Propellers, steam, land	June 3, 1856	X.
15096	Yost, George W. N	Reaping and mowing machines	June 10, 1856	I.
14382	Yost, William	Scale, weighing, beams	Mar. 4, 1856	XII.
14980	Youart, James T	Harvesters, grain and grass	May 27, 1856	I.
14624	Young, Edwin	Slate-frame	April 8, 1856	XXII.
14175	Young, George D	Belt or band fastening	Jan. 29, 1856	XII.
15911	Young, Smith	Gates, fastening for	Oct. 14, 1856	IX.
14989	Zeigler, George W	Plows	May 27, 1856	I.
14937	Zeigler, George W., and Manasseh Grover	Stumps, extracting, mode of	May 20, 1856	IX.
15542	Ziervogel, W.	Processes of separating silver from the ore	Aug. 12, 1856	IV.
15401	Zimmerman, C. M	Accordeons, valves of	July 22, 1856	XVIII.
16102	Zimmerman, C. M.	Violins, &c., tail-pieces for	Nov. 18, 1856	XVIII.
15453	Zimmerman, Jacob	Cultivators	July 29, 1856	I.

CLASS I.—AGRICULTURE, *including instruments and operations.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14051	Bee hives	George H. Clarke	East Washington, N. H	Jan. 8.
14168	Bee hives	H. G. Robertson	Greenville, Tenn	Jan. 29.
15457	Bee hives	J. S. Brown, assignor to Joseph Kent	Washington, D. C. Baltimore county, Md.	July 29.
15894	Bee hives	Charles Pawling	New Pittsburg, Ohio	Oct. 14.
15436	Binding grain, &c., machines for	Washington F. Pagett	Stone Bridge, Va	July 29.
14530	Butter-worker	James H. Bennett	Bennington, Vt.	Mar. 25.
15350	Cattle stall	Hiram Tarbox, 2d	Tremont, N. Y	July 15.
	Cheese presses. (See Class XII, letter P.)			
14309	Churns	John U. Fiester	Winchester, Ohio	Feb. 26.
14458	Churns	Lucius Leavenworth	Trumansburg, N. Y	Mar. 18.
14677	Churns	William Newbrough	Mohican, Ohio	April 15.
15412	Churns	Wm. H. Burnham and B. Hibbard	Cortland Village, N. Y	July 29.
15661	Churns	Loomis Lamb	Berlin, Conn.	Sept. 2.
15741	Churns	A. Pease	Weston, Vt	Sept. 16.
15787	Churns	Franklin Thorpe	Shelbyville, Ill	Sept. 23.
16203	Churns	William A. Vertrees	Winchester, Mo	Dec. 9.
16193	Churns	Charles A. Shaw	Biddeford, Me	Dec. 9.
16210	Churns	Goodrich Lightfoot	Elgin, Ill	Dec. 9.
15743	Clevis	E. A. Palmer	Clayville, N. Y.	Sept. 16.
14816	Clover seed, saving machines for	Mathew Kahle	Lexington, Va	May 6.
14596	Corn, broom, machine for combing seed off	George E. Burt	Harvard, Mass	April 8.
14374	Corn-shellers	Jeremiah P. Smith	Hummelstown, Pa	Mar. 4.
14745	Corn-shellers	A. H. Stevens	Warsaw, N. Y	April 22.
14771	Corn-shellers	E. Mathers	Morgantown, Va	April 29.
14990	Corn-shellers	Charles S. C. Crane, assignor to Samuel M. Tinkham.	Taunton, Mass	May 27.
15105	Corn-shellers	Ebenezer Morrison	Franklin, N. H.	June 10.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15512	Corn-shellers	Calvin Adams	Oak Hill, N. Y	Aug. 12.
15765	Corn-shellers	J. I. Johnston	Alleghany city, Pa	Sept. 23.
15920	Corn-shellers	William Black	Alleghany city, Pa.	Oct. 21.
16191	Corn-shellers	Hamilton E. Smith	Philadelphia, Pa	Dec. 9.
16291	Corn-shellers	Edgar M. Stevens, assignor to E. Townsend.	Boston, Mass	Dec 23.
16127	Corn, shelling, disk for	Jeremiah P. Smith	Hummelstown, Pa	Nov. 25.
16177	Corn, standing, machines for cutting the stalks of.	William B. Coates	Philadelphia, Pa	Dec. 9.
15746	Cotton pickers	B. G. Shields	Marlin, Texas	Sept. 16.
15606	Cultivator	Hervey D. Ganse	Freehold, N. J	Aug. 26.
14715	Cultivators	George Esterly	Heart Prairie, Wis	April 22.
15453	Cultivators	Jacob Zimmerman	Oswego, Ill	July 29.
14254	Cultivator teeth	C. H. Sayre and G. Klinck	Utica, N. Y	Feb. 12.
15210	Drills, grain	Abraham Fravel, assignor to himself and Thomas D. Lemon.	La Porte, Ind	June 24.
	Fertilizers, processes for preparing. (See Class IV, letter P.)			
14708	Fertilizers, sowing, machine for	Warren S. Bartle	Newark, N. Y	April 22.
15976	Forks, shovels, and hoes, agricultural, the handles of.	Reuben M. Hine	Throopsville, N. Y	Oct. 28.
15151	Harrows, revolving	Garret J. Olendorf	Middlefield, N. Y	June 17.
14149	Harvester cutter-bars	John H. Manny	Rockford, Ill	Jan. 22.
14768	Harvester cutter-blades, attaching to the sickle bar.	Wm. H. Hovey	Springfield, Mass	April 29.
14402	Harvester-cutters	Israel S. Love	Beloit, Wis	Mar. 11.
14422	Harvester-cutters	Pliny Thayer	Lansingburg, N. Y	Mar. 11.
14453	Harvester-cutters	Horace L. Hervey	Quincy, Ill	Mar. 18.
14544	Harvester-cutters	John H. Manny, assignor to Peter H. Watson	Rockford, Ill / Washington, D. C.	Mar. 25.
14777	Harvester-cutters	Benjamin T. Roney	Philadelphia, Pa	April 29.

14693	Harvester-raking attachments	William H Hovey	Springfield, Mass	April 15.
14026	Harvesters	John H. Manny	Rockford, Ill	Jan. 1.
14046	Harvesters	Lebbeus Barnes	Islip Township, N. Y	Jan. 8.
14079	Harvesters	John Reily, assignor to Heath, Dousman & Reily	Heart Prairie, Wis Sullivan, Ottawa, Wis	Jan. 8.
14205	Harvesters	B. F. Ray	Baltimore, Md	Feb. 5.
15146	Harvesters	J. C. & L. C. Pluche	Cape Vincent, N. Y	June 17.
15204	Harvesters	Cyril B. Wagner	Philadelphia, Pa	June 24.
15236	Harvesters	John C. Heuermann and Jonathan Reevis.	Camden, N. J	July 1.
15377	Harvesters	Stephen R. Hunter	Cortlandt, N. Y	July 22.
15582	Harvesters	William Tinker	Kelloggsville, Ohio	Aug. 19.
15638	Harvesters	Homer Adkins	Plymouth, Ill	Sept. 2.
15721	Harvesters	W. H. Seymour and H. Pease, assignors to Seymour & Morgan.	Brockport, N. Y	Sept. 9.
15722	Harvesters	W. H. Seymour and H. Pease, assignors to Seymour & Morgan.	Brockport, N. Y	Sept.
15735	Harvesters	William Gage	Buffalo, N. Y	Sept. 16.
15855	Harvesters	Israel S. Love	Beloit, Wis	Oct. 7.
15843	Harvesters	William Dripps	Coatesville, Pa	Oct. 7.
15882	Harvesters	Charles W. Glover	Roxbury, Conn	Oct. 14.
15927	Harvesters	P. Manny	Waddam's Grove, Ill	Oct. 21.
16079	Harvesters	Alvin Bullock	Busti, N. Y	Nov. 11.
16194	Harvesters	William Tinker	Kelloggsville, Ohio	Dec. 9.
14553	Harvesters, apparatus for removing grain from.	Samuel Comfort, jr	Morrisville, Pa	April 1.
14769	Harvesters, automatic rakes for	Salem T. Lamb	New Washington, Ind	April 29.
16307	Harvesters, automatic rakes for	Samuel Comfort, jr., assignor to E. S. Renwick.	Morrisville, Pa	Dec. 23.
15149	Harvesters, clover seed	C. B. Wheeler and A. Bascom	Steuben, Ohio	July 29.
14076	Harvesters, corn	G. W. N. Yost	Port Gibson, Miss	Jan. 8.
14344	Harvesters, corn	William M. Bonivill	Camden, Del	Mar. 4.
14730	Harvesters, corn	R. C. Mauck and W. T. McGahey	Rockingham, Va	April 22.
15152	Harvesters, corn	W. S. Tilton	Boston, Mass	June 17.
15533	Harvesters, corn	Andrew Sprague	Coldwater, Mich	Aug. 12.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15409	Harvesters, corn and cane, cutting apparatus of.	John W. Batson, assignor to himself and Martin H Batson.	Triadelphia, Md	July 29.
15408	Harvesters, corn and cane, raking apparatus of.	John W. Batson, assignor to himself and Martin H. Batson.	Triadelphia, Md	July 29.
14761	Harvesters, cradling	Milton Barlow	Lexington, Ky	April 29.
15205	Harvesters, cutting apparatus for	Cyril B. Wagner	Philadelphia, Pa	June 24.
15677	Harvesters, cutting device for	C Wheeler, jr	Poplar Ridge, N. Y	Sept. 2.
16134	Harvesters, finger-bar arrangement for	Joseph A Moore and Asahel H. Patch	Louisville, Ky	Nov. 25.
14250	Harvesters, grain	Job Phillips	Harrisburg, Pa	Feb. 12.
14556	Harvesters, grain	Augustus Elliott	San Francisco, Cal	April 1.
14102	Harvesters, grain and grass	William F. Ketchum	Buffalo, N. Y	Jan. 15.
14127	Harvesters, grain and grass	G. Sanford, T. Hull, and S. Hull	Poughkeepsie, N. Y	Jan. 15.
14148	Harvesters, grain and grass	John H. Manny	Rockford, Ill	Jan. 22.
14212	Harvesters, grain and grass	Abner Whiteley	Springfield, Ohio	Feb. 5.
14266	Harvesters, grain and grass	Geo. W. N. Yost	Pittsburg, Pa	Feb. 12.
14409	Harvesters, grain and grass	B. T. Roney	Philadelphia, Pa	March 11.
14428	Harvesters, grain and grass	Abner Whiteley	Springfield, Ohio	March 11.
14441	Harvesters, grain and grass	Thomas D. Burrall	Geneva, N. Y	March 18.
14448	Harvesters, grain and grass	Eliakim B. Forbush	Buffalo, N. Y	March 18.
14541	Harvesters, grain and grass	Abner Whiteley	Springfield, Ohio	March 25.
14582	Harvesters, grain and grass	Geo. W. N. Yost	Pittsburg, Pa	April 1.
14661	Harvesters, grain and grass	William H. Hovey	Springfield, Mass	April 15.
14694	Harvesters, grain and grass	William A. Kirby	Buffalo, N. Y	April 15.
14980	Harvesters, grain and grass	James T. Youart	Troy, Ohio	May 27.
15029	Harvesters, grain and grass	Allen B. Wilson	Waterbury, Conn	June 3.
15672	Harvesters, grain and grass	O. Stoddard	Busti, N. Y	Sept. 2.
16057	Harvesters, grain and grass, cutting apparatus of.	Moses G. Hubbard	Penn Yan, N. Y	Nov. 11.
16097	Harvesters, grain, binder for	C. A. McPhetridge	St. Louis, Mo	Nov. 18; antedated Oct. 25.
14036	Harvesters, grain, binders for	Geo. W. N. Yost	Port Gibson, Miss	Jan. 1

15751	Harvesters, self-acting rakes for	J. Whitehead	Manchester, Va.	Sept. 16.
15387	Harvesters, self-raker for	Silas G. Randall	Rockford, Ill	July 22.
14784	Harvesters, self-rakers for	John T. Whitaker	St. Charles, Ill	April 29.
14861	Harvesters, self-raking attachments to	Hugh Foresman	Enors, Ohio	May 13.
15084	Harvesters, sickle bars of, attaching teeth to	J. C. & L. C. Pluche	Cape Vincent, N. Y.	June 10.
15926	Harvesters, sickles for	P. Manny	Waddam's Grove, Ill	Oct. 21.
16052	Harvesting grain, machines for	George F. Foote	Buffalo, N. Y.	Nov. 11.
15569	Harvesting machines	Larkin L. Moore	Petersburg, Va.	Aug. 19.
15669	Harvesting machines	J. Y. Schelly and J. Stauffer, assignors to Wm. Watson.	St. Paul, Minn	Sept. 2.
15659	Harvesting machines	W. A. Kirby	Buffalo, N. Y.	Sept. 2.
15748	Harvesting machines	G. W. Tolhurst	Cleveland, Ohio	Sept. 16.
16244	Harvesting machines	Robert J. Morrison	Richmond, Va.	Dec. 16.
16313	Harvesting machines	Joseph Carpenter	Yorktown, N. Y.	Dec. 23.
16253	Harvesting machines, finger bar for	Wm. H. Seymour, assignor to Seymour & Morgan.	Brockport, N. Y.	Dec. 16.
	Hay forks, machines for bending. (See Class II, letter F.)			
14539	Hillers, cotton	A. W. Washburn	Yazoo City, Mis.	March 25.
15269	Hulling and scouring grain, seed, &c., machines for.	Oliver P. Stevens	Cleveland, Ohio	July 1.
15985	Husking corn, machine for	William H. Smith	Newport, R. I.	Oct. 28.
16008	Husking corn, machine for	Harlan P. Gerrish	Boscawen, N. H.	Nov. 4.
15047	Husking corn, machines for	Oren Stoddard	Busti, N. Y.	June 3.
16023	Husking corn, machines for	Joshua Perkins	West Killingley, Conn.	Nov. 4
16201	Husking corn, machines for	John Taggart and Leonard A. Grover, assignors to Taggart, Grover, & Banker.	Roxbury, Mass.	Dec. 9.
16204	Husking corn, machines for	Robert Bryson	Schenectady, N. Y.	Dec. 9.
14864	Husking, thimble	J. H. Gould	Smith, Ohio	May 13.
15876	Manure distributor	J. W. Barnes	Murfreesboro', N. C.	Oct. 14.
15629	Milking cows, implement for	William H. Whitman	Abington, Penn.	Aug. 26.
15265	Mowing grass and cutting grain, machines for.	Anson S. Hathaway, assignor to himself and Frederick A. Ruggles.	Columbia, Me.	July 1.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14078	Mowing-machines	Henry Pease, assignor to himself and Jas. Roby.	Brockport, N. Y.	Jan. 8.
14138	Mowing-machines	Joseph S. Manning	Philadelphia, Penn.	Jan. 22.
14404	Mowing-machines	Jacob J. Mann	Westville, Ind.	Mar. 11.
14445	Mowing-machines	Samuel Comfort, j	Morrisville, Penn.	Mar. 18.
14961	Mowing-machines	William F. Ketchum	Buffalo, N. Y.	May 27.
14898	Mowing-machines	Jonathan F. Barrett, assignor to Abram B. and Jonathan R. Barrett.	North Granville, N. Y.	May 13
14874	Mowing-machines	C. M. Lufkin	Ackworth, N. H.	May 13.
15160	Mowing-machines	Cornelius Aultman and Lewis Miller, assignors to Ball, Aultman & Co.	Canton, Ohio	June 17.
15354	Mowing-machines	John W. Thompson	Greenfield, Mass.	July 15.
15507	Mowing-machines	Ephraim Ball	Canton, Ohio	Aug. 12.
16274	Mowing-machines	Andrew M. Hall	West Falmouth, Me.	Dec. 23.
14070	Mowing-machines, blades of	Gustavus Stone	Beloit, Wis	Jan. 8.
15203	Mowing-machines, dividing shoe for	Walter A. Wood	Hoosick Falls, N. Y.	June 24.
16247	Mowing and reaping-machines	Jeremiah W. Mulley	Amsterdam, N. Y.	Dec. 16.
15338	Mowing and reaping-machines, frames of	Moses G. Hubbard	Penn Yan, N. Y.	July 15.
14631	Planters, corn	E. P. Lacey	Rochester, N. Y.	April 8.
14776	Planters, corn	Silas G. Randall	Rockford, Ill.	April 29.
14785	Planters, corn	Samuel Wilt and Geo. W. Albaugh	Greencastle, Penn.	April 29.
14801	Planters, corn	Reinhold Bocklen	Jersey City, N. J.	May 6.
15322	Planters, corn	Moses Bemiss	Lyme, Ohio	July 15.
15426	Planters, corn	James D. Jeffers, Joseph Sparks, and John W. Jeffers.	Philadelphia, Penn.	July 29.
15755	Planters, corn	Malender Bates	Carlton, N. Y.	Sept. 23.
14131	Planters, cotton-seed	John M. Jones, assignor to Newton Foster.	Palmyra, N. Y.	Jan. 22.
14240	Planters, cotton seed	J. L. Horn	Edgecombe, N. C.	Feb. 12.
14529	Planters, cotton-seed	A. W. Washburn	Yazoo City, Miss.	Mar. 25.
15080	Planters, cotton-seed	J. A. Stewart	Franklin, Ky.	July 1.

15035	Planters, hand corn	Samuel L. Denney	Pennington Valley, Penn	June 5.
15114	Planters, hand corn	George Athins	Pittsburg, Penn	June 17.
15616	Planters, hand corn	Cornelius Martratt	Albany, N. Y	Aug. 26.
15696	Planters, hand corn	H. B. Hammon	Bristolville, Ohio	Sept. 9.
16135	Planters, hand corn	Thos. A. Chandler, assignor to H. Herrick and T. A Chandler	Rockford, Ill	Nov. 25.
14767	Planters, hand seed	Edward Hopkins	Cincinnati, Ohio	April 29.
15431	Planters, hand seed	A. C. Miller	Morgantown, Va	July 29.
15610	Planters, hand seed	S. Herva Jones	Rockton, Ill	Aug. 26.
15433	Planters, potato	John Moore	Quincy Point, Mass	July 29.
14144	Planters, seed	F. Plummer	Manchester, Ind	Jan. 22.
14235	Planters, seed	R. & W. L. Gebby	New Richland, Ohio	Feb. 12.
14465	Planters, seed	Elijah Morgan	Morgantown, Va	Mar. 18.
15101	Planters, seed	P. B. Green and E. A. Kennedy	Waukegan, Ill	June 10.
15106	Planters, seed	George A. Meacham	New York, N. Y	June 10.
15182	Planters, seed	George Hall	Morgantown, Va	June 24.
15691	Planters, seed	John Fordyce	Morgantown, Va	Sept. 9.
15822	Planters, seed	John F. Seaman	Walcott, N. Y	Sept. 30.
15810	Planters, seed	B. Kuhns and M. J. Haines	Dayton, Ohio	Sept. 30.
15955	Planters, seed	J. H. Shireman	East Berlin, Pa	Oct. 21.
15974	Planters, seed	Jesse D. Haris	Perry, Ga	Oct. 28.
16198	Planters, seed	H. Wyant	Vincennes, Ind	Dec. 9.
16314	Planters, seed	N. C. Sherman and J. Mason	Hazle Green, Wis	Dec. 23.
14533	Plough, cultivating	Micajah Crenshaw	Springfield, Texas	Mar. 25.
	Plough handles, &c., machine for bending. (See Class XIV.)			
14726	Plough, subsoil	Pells, Manny	Waddam's Grove, Ill	April 22.
14013	Ploughs	George W. Cooper	Ogeechee, Ga	Jan. 1.
14044	Ploughs	B. F. Avery	Louisville, Ky	Jan. 8.
14224	Ploughs	John Clarke, and G. W N. Yost	Washington, D. C Pittsburg, Pa	Feb. 12.
14288	Ploughs	James B. Mell	Riceboro', Ga	Feb. 19.
14346	Ploughs	James J. Cadenhead	Macon county, Ala	Mar. 4.
14989	Ploughs	George W. Zeigler	Tiffin City, Ohio	May 27.
15137	Ploughs	N. S. Lockwood and J. D. Winn	Dayton, Ohio	June 17.
15344	Ploughs	John Rich	Kingsbury, N. Y	July 15.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15321	Ploughs	Alvin Barton	Syracuse, N. Y	July 15.
15654	Ploughs	Benaiah C. Hoyt	Port Washington, Wis	Sept. 2.
15649	Ploughs	Josephus P. Harris	Byhalia, Miss	Sept. 2.
15887	Ploughs	Samuel A. Knox	Worcester, Mass	Oct. 14.
16277	Ploughs	Jacob Heckendorn	Elkton, Md	Dec. 23.
16260	Ploughs	Jonathan Adams	Eatonton, Ga	Dec. 23.
14075	Ploughs, cultivating	W. E. Wyche	Brookville, N. C	Jan. 8.
14333	Ploughs, cultivating	William E. Wyche	Brookville, N. C	Feb. 19.
15919	Ploughs, coulters or, apparatus for cleaning	Edmund C. Bills, jr	Perry, N. Y	Oct. 21.
14287	Ploughs, draining, mode of	A. E. and C. Marquiss, and Charles Emerson	Monticello, Ill / Decatur, Ill	Feb. 19.
14373	Ploughs, gang	Aaron and Thomas S. Smith	Troy, Ill	Mar. 4.
15039	Ploughs, subsoil	Cyrus Garrett and Thomas Cottman	Cincinnati, Ohio	June 3.
14810	Potato diggers	Abram Hulings	Philadelphia, Pa	May 6.
15100	Potato diggers	Amos L. Grinnell and John Z. Williams	Willet, Wis	June 10.
15628	Potato diggers	S. Wollson	Moodna, N. Y	Aug. 26.
16184	Potato diggers	William Mussehl	New York, N. Y	Dec. 9.
14097	Pruning trees, implements for	W. W. Harvey	Saltville, Va	Jan. 15.
16016	Rakes for reapers, automatic	Pells, Manny	Waddam's Grove, Ill	Nov. 4.
15601	Rakes, hay	Charles P. Carpenter	St. Johnsbury, Vt	Aug. 26.
15653	Rakes, hay	H. Heaberlin	Scipio, Ind	Sept. 2.
15777	Rakes, hay	Isaac I. Robbins	Penn's Manor, Pa	Sept. 23.
16025	Rakes, hay	Thomas R. Roach	West Needham, Mass	Nov. 4.
16318	Rakes, hay	John J. Squire	St. Louis, Mo	Dec. 23.
14321	Rakes, horse	Nathan Martz	Brier Creek township, Pa	Feb. 26.
14067	Rakes, horse hay	Randal Pratt	Marple township, Pa	Jan. 8.
16156	Rakes, self acting, for harvesting machines	Jesse Whitehead	Manchester, Va	Dec. 2
16145	Raking apparatus for harvesters	S. R. Hunter	Cortlandt, N. Y	Dec. 2.
15237	Raking attachment for reapers	John C. Hicks	Rockaway, N. Y	July 1.
15046	Raking and loading hay, machine for	Joseph Smith	Condit, Ohio	June 3.
14538	Raking and loading hay, machines for	D. H. Thompson	Fitchburg, Mass	Mar. 25

		Vaughan and W. P. Wood.			
16251	Reaping and mowing machines	Daniel C. Smith	Tecumseh, Mich	Dec.	16.
16258	Reaping and mowing machines	Thomas D. Burrall	Geneva, N. Y	Dec.	16.
14781	Reaping-machines	Pliny, Thayer	Lansingburg, N. Y	April	29
15044	Reaping-machines	Jacob J. and H. F. Mann	Westville, Ind	June	3.
16183	Reaping-machines, teeth for	M. G. Hubbard	Penn Yan, N Y	Dec.	9.
14673	Rice, reaping, implement for	W. J. McIntosh	Savannah, Ga	April	15.
14540	Scrapers, cotton	A. W. Washburn	Yazoo city, Miss	Mar.	25.
14513	Scythe-fastening	Thomas C. Ball, assignor to Nathaniel Lamson	Walpole, N. H Shelburne, Mass	Mar.	25.
14842	Scythe-fastenings	Denison W. Green, assignor to himself and Aretas Ferry.	Bernardstown, Mass	May	6.
15849	Scythes to snaths, attaching	David A. Goodnow	Baldwinville, Mass	Oct.	7.
15194	Seeding-machine, hand	Silas G. Randall	Rockford, Ill	June	24.
14073	Seeding-machines	John G. Snyder	Wheatfield, Pa	Jan.	8.
14284	Seeding-machines	Stephen Gorsuch	Altoona, Pa	Feb.	19.
14450	Seeding-machines	John German and C. B. Hoyt	Oriskany Falls, N. Y	Mar.	18.
14703	Seeding-machines	Thomas A. Risher, assignor to Thomas A. Risher and I. K. Cooper.	Lancaster, Ohio	April	15.
14707	Seeding-machines	George I. Bitler	Lancaster, Ohio	April	22.
14894	Seeding-machines	Hosea Willard	Vergennes, Vt	May	13.
15104	Seeding-machines	C. O. Luce	Freeport, Ill	June	10.
16219	Seeding-machines	Moses D. Wells	Morgantown, Va	Dec.	9.
16209	Seeding-machines	James N. Kern	Morgantown, Va	Dec.	9.
16195	Seeds in the earth, implements for rolling	Anson Thompson	Glenn's Falls, N. Y	Dec.	9.
14570	Seeds or grain in the field, machine for gathering.	Thomas E. Marable	Petersburg, Va	April	1.
14517	Separators, grain	Cyrus Roberts and John Cox	Belleville, Ill	Mar.	25
15948	Shearing sheep	J. V. Jenkins	Jackson, Mich	Oct.	21
14354	Shears, sheep	Luther B. Fisher	Coldwater, Mich	Mar.	4.
14840	Shears, sheep	Robert M. Wilder	Coldwater, Mich	May	6.
16264	Snath of a grain cradle, mode of securing braces in the.	William W. Bryan	Schaghticoke, N. Y	Dec.	23.
14629	Sowing seed broadcast, machine for	Jesse Lincoln	Union Town, Pa	April	8.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14274	Sowing seed broadcast, machines for	Edward F. Berry	Hudson, N. H.	Feb. 19.
14630	Sowing seed broadcast, machines for	Peter Lawrenson	New York, N. Y.	April 8.
14837	Sowing seed broadcast, machines for	Enos Stinson	North Craftsbury, Vt.	May 6.
16322	Sowing seed broadcast, machines for	E. K. Haynes, assignor to self and A. M. Mowe.	Hanover, N. H.	Dec. 23.
16007	Spading machine	Ormrod C. Evans	Stantown, Ohio	Nov. 4.
15171	Spreaders, lime and guano	William Croasdale	Hartsville, Pa.	June 24.
15320	Straw-cutter	Warren S. Bartle and Ebenezer Vaughan.	Newark, N. Y.	July 15.
15342	Straw-cutter	Oren Moses	Malone, N. Y.	July 15.
15333	Straw-cutter	Cotton Foss	Painesville, Ohio	July 15
14116	Straw-cutters	Samuel T. Sharp	Danville, Mo.	Jan. 15.
14410	Straw-cutters	Edwin P. Russell	Manlius, N. Y.	Mar. 11.
15108	Straw-cutters	Thomas Wiles	Somerset, Ohio	June 10.
15485	Straw-cutters	J. H. Gooch	Oxford, N. C.	Aug 5.
15674	Straw-cutters	Shelton M. Thompson	Glasgow, Ky.	Sept 2.
15761	Straw-cutters, feed rolls of	Alexander Gordon	Rochester, N. Y.	Sept. 23.
15349	Threshing and cleaning grain in the field, machines for.	George W. Swift	Oxford, Miss.	July 15.
15116	Threshing and winnowing grain, machines for.	Alfred Belchambers	Ripley, Ohio	June 17.
15786	Threshing, grain, machine	Isaac S. Spencer	Guilford, Conn.	Sept. 23.
15917	Threshing, grain, and separating machines	John Barnes	Mount Morris, N. Y.	Oct. 21.
14444	Threshing-machines	Hiram Clark	Princeton, Mass.	Mar. 18.
15074	Threshing-machines	William Holmes	Brooklyn, N. Y.	June 10.
14462	Trees, felling, machine for	Ebenezer Mathers	Morgantown, Va.	Mar. 18
14654	Vines, mode of protecting	Abel H. Grennell	Springfield, Vt.	April 15.
14865	Winnowing mills	Horace N. Goodrich	Aurora, Ill.	May 13.
15444	Yokes, ox	Miron Smith	Sandisfield, Mass.	July 29.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15037	Amalgamator	James W. Evans	New York, N. Y.	June 3.
15619	Amalgamator.	Alva M. Stetson	San Francisco, Cal.	Aug. 26.
14023	Amalgamator, gold.	Daniel Leibee	Middletown, Ohio	Jan. 1.
15524	Amalgamator, gold-washer, and	Warren S. Pierce	North Attleborough, Mass.	Aug. 12.
15147	Auger-handles	N. C. Sanford	New Haven, Conn	June 17.
14561	Augers, method of manufacturing	George G. Griswold	Chester, Conn	April 1.
15656	Axes, machine for testing	Warren Hunt	East Douglass Mass.	Sept. 2.
15380	Axe-polls, making	D. P. Estep	Pittsburg, Pa	Oct. 14.
14704	Awl-haft	Benjamin James, assignor to Roswell E. James.	Worcester, Mass	April 15.
14695	Bars, railroad, repairing	James McLellan	Detroit, Mich	April 15.
15687	Bars, railroad, repairing	Joseph D. Cawood	Marshall, Mich.	Sept. 9.
14876	Bits, fastening	Horace Lettington	Norwich, N. Y	May 13.
	Blow-pipe, spirit. (See Class V, Letter B.)			
15500	Bolt for vault and safe doors	Linus Yale	Newport, N. Y.	Aug. 5.
15729	Bolt, heading	E. & P. Coleman	Philadelphia, Pa.	Sept. 16.
14258	Bolt, machine	Timothy F. Taft	Fitchburg, Mass.	Feb. 12.
16228	Bolt, spring	William E. Copeland	Fall River, Mass	Dec. 16.
14381	Bolts, heading	George Woodward	Brunswick, Me	Mar. 4.
14086	Bolts, heading, machines for	H M. Clark	New Britain, Conn	Jan. 15.
16301	Bolts, trimming, machine for	W. Hannah, assignor to L H. Bowen and W. Hannah.	Middlefield, N. Y.	Dec. 23.
14633	Buckles, polishing, machine for	Robert G. Pine	Sing Sing, N. Y.	April 8.
	Casting car wheels. (See Class X, letter W.)			
14442	Castings, chilled, making	William Butler	Little Falls, N. Y.	Mar. 18.
	Catch, double-acting, for reversible backs of settees. (See Class XVII, letter S.)			
15427	Clamp for plumbers	F. R. Langwith	New York, N. Y.	July 29.
16115	Combs, curry	Evan L Evans	Providence, R. I.	Nov. 25.
15560	Coupling pipes	Geo Felters and J. S. McClintock	Philadelphia, Pa.	Aug 19.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries	Patentees.	Residence.	Date of patent.
				1856.
15512	Dies for screw-blanks	Charles R. Gardner	Detroit, Mich	Aug. 12.
15278	Dies for stamping or pressing sheet-metal	Wm. M. Booth and James H. Mills	Buffalo, N Y	July 8.
15080	Die stock for cutting screws	Patrick, McGlew	Waterford, Conn.	June 10.
14834	Door-fastener	Willard H. Smith	New York, N Y	May 6.
16048	Door-fastener	Legrand Crofoot	Syracuse, N Y	Nov. 11.
16282	Door-fastener	James Letort	Wytheville, Va	Dec. 23.
14594	Door-fasteners	G. H. Lindner	Hoboken, N J	April 8.
14773	Door-fasteners	Elisha P. Moulton	Baltimore, Md	April 29.
14112	Door-fastenings	Reed Peck	Cortlandville, N. Y.	Jan. 15.
15332	Door-knob	Henry H. Elwell	Meriden, Conn	July 15.
15367	Door-knobs	Jeremy W. Bliss	Hartford, Conn	July 22.
14595	Door-knobs, fastening	Nathan Benham	Hartford, Conn	April 8.
16047	Door-knob spindles, fastening	Almon Cooley	Hartford, Conn	Nov. 11.
14326	Door-spring	David G. Smith	Carbondale, Pa	Feb. 26.
14691	Door-spring	George W. Griswold	Carbondale, Pa	April 15.
14686	Door-spring	Gilbert L. Bailey	Portland, Me	April 15.
15555	Door-spring	John Broughton	Chicago, Ill	Aug. 19.
14583	Door springs	Alvin Barton, assignor to himself, A. R. Morgan, and J. M. Parsons.	Syracuse, N. Y	April 1.
15864	Door-springs, bracket for	Alexander J. Walker	New York, N. Y	Oct. 7.
15493	Door-stay	Anson H. Platt	Yellow Springs, Ohio	Aug. 5.
	Eave-troughs, machine for making. (See Class IX.)			
15912	Emery wheels, cleaning, machines for	Stephen A. Whipple and Heman Whipple.	Shaftsburg, Vt	Oct. 14.
14881	File-cutting machine	James L. Norton	Alum Bank, Pa	May 13.
15525	Files	George M. Ramsay	New York, N. Y	Aug. 12.
14189	Files, cutting	Major H. Fisher, assignor to Joseph A. Hyde.	Sing Sing, N. Y	Feb. 5.
16064	Files, cutting	Charles Miller	New York, N. Y	Nov. 11.
	[illegible] round cutting	M. D Whipple assignor to A B. Ely	Newton, Mass	Oct. 7.

15541	Furnace, blast	Wm. Wright and George Brown	Newcastle, Eng	Aug. 12.
14257	Furnaces, blast, fluxing	Christian Shunk	Slate Lick, Pa	Feb. 12.
15907	Gimlet-handles	G. H. Talbot	Boston, Mass	Oct. 14.
14316	Gold and other precious metals from foreign substances, machines for separating.	Edward N. Kent	New York, N. Y	Feb. 26.
14847	Gold washing, riffle for.	O. G. Auld and J. S. Whiting	Stockton, Cal	May 13.
14058	Hammer heads to shafts, attaching	Charles Hammond	Philadelphia, Pa	Jan. 8.
14167	Hinge	George M. Ramsay	New York, N. Y	Jan. 29.
14349	Hinge for shutters	Isaac Davis	Groton, N. Y	Mar. 4.
16272	Hinge, spring	John T. Garlick	New York, N. Y	Dec. 23.
15241	Hinges, butt, machine for grinding	Cyrus Kenney and William Gurley	Troy, N. Y	July 1.
16273	Hoof expander	C. B. and Samuel Galentine and Andrew J. Russell.	Nunday, N. Y	Dec. 23.
14193	Hooks, ships, machines for bending	Elisha Harris	Providence, R. I	Feb. 5.
14852	Horse shoe	Nelson B. Carpenter	New York, N. Y	May 13.
14915	Horse shoe	John Henderson	Elmira, N. Y	May 20.
15306	Horse shoe	Sewall Short	New London, Conn	July 8.
16082	Iron and steel, manufacture of	Henry Bessemer	London, England	Nov. 11; England, Feb. 12.
15750	Iron fence, posts and ties, construction of	John B. Wickersham	New York, N. Y	Sept 16.
16186	Iron, forging, machines for	S. S. Putnam	Boston, Mass	Dec. 9.
16083	Iron ore, smelting	Henry Bessemer	London, England	Nov. 18; England, Aug. 25.
15159	Iron plates, welding	William Bertram, assignor to John W. Cochran.	Woolwich, England	June 17; England, Dec. 21, 1854.
14412	Iron, puddling	Richard Savany	Steubenville, Ohio	Mar. 11.
14114	Iron scraps, remelting	Abiel Pevey	Lowell, Mass	Jan. 15.
	Iron shingles, cast, lugs for. (See Class IX, letter S.)			
14827	Iron, smelting, furnaces for	Thomas H. Powers	Wyocena, Wis	May 6.
	Irons, soldering, furnace for heating. (See Class V, letter F.)			
15247	Kettle, brass, machine	O. W. Minard	Waterbury, Conn	July 1.
15961	Kettle, brass, machine for making	E. C. Blakeslee, E. Platt, and E. Jordan	Waterbury, Conn	Oct. 28.
14696	Kettles, brass, making	O. W. Minard	Waterbury, Conn	April 15.

Classified List of Patents issued—Continued.

No.	Inventions and discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14887	Kettles, brass, making	Frederick J. Seymour	Waterbury, Conn	May 13.
15172	Kettles, brass, making	O. W. Minard	Waterbury, Conn	Sept. 23.
15031	Lock	Linus Yale	Newport, N. Y	June 3.
15708	Lock	Henry D. Russell	Naugatuck, Conn	Sept. 9.
14209	Lock, alarm	S. J. Trask	Guilford Centre, N. Y	Feb. 5.
15168	Lock, alarm	Julius Cone	Yellow Springs, Ohio	June 24.
14958	Lock and key	Ezekiel M. Hendrickson	Brooklyn, N. Y	May 27.
14178	Lock, cell	E. Kershaw, assignor to Kershaw and H. N. Cooper & Co.	Boston, Mass	Jan. 29.
15136	Lock, door	Christian Knauer, assignor to Warwick, Atterbury, & Co.	Birmingham, Pa	June 17.
15783	Lock for freight cars	Thomas Slaight	Newark, N. J	Sept. 23.
14675	Lock, hasp	M. Newman, 2d	Oak Hill, N. Y	April 15.
14030	Lock, pad	I. J. Oldis	Wheeler, N. Y	Jan. 1.
15270	Lock, pad	Soloman Andrews	Perth Amboy, N. J	July 8.
16224	Lock, pad, case for	Solomon Andrews	Perth Amboy, N. J	Dec. 16.
14616	Locks	William Maurer	New York, N. Y	April 8.
14896	Locks	Joseph M. Lippincott	Pittsburg, Pa	May 13.
14348	Locks	William H. Akins	Berkshire, N. Y	May 13.
15124	Locks	M. Erb and F. C. Goffin	Newark, N. J	June 17.
15239	Locks	Henry Isham	New Britain, Conn	July 1.
15489	Locks	Joseph M Lippincott	Pittsburg, Pa	Aug. 5.
15589	Locks	Hjalmar Wynblad	New York, N. Y	Aug. 19.
15800	Locks	G. W. Coppernol	Ohio, N. Y	Sept. 30.
15962	Locks	W. H. Butler	New York, N. Y	Oct. 28.
14618	Locks, door	Andrew Patterson	Pittsburg, Pa	April 8.
14714	Locks, door	John B. Erb	Strasburg, Pa	April 22.
15456	Locks, face-plate for	Thos. B. Atterbury and Wm. Warwick, assignors to Warwick, Atterbury, & Co.	Pittsburg, Pa	July 29.
14059	Locks, pad	James Harrison, jr	Milwaukie, Wis	Jan. 8.
16089	Lock, spring-latch	William A. Ives	New Haven, Conn	Nov. 18

15113	Metal beams	Joshua K. Ingalls, assignor to M. H. Howell.	Brooklyn, N. Y.		
16286	Metal, cast, securing pearl ornaments in handles of.	C. Dickinson and W. Bellamy	Newark, N. J	July	8.
16118	Metal, lathes for planing	William W. Hubbard	Boston, Mass	Nov.	25.
16250	Metallic slats for blinds, machine for making	John S. Sanson and William P. Farrand	Philadelphia, Pa	Dec.	16.
16166	Metallic tubes, casting	James Smith, jr	Norton, Mass	Dec.	2.
15899	Metal pipe, bending, machine for	J. Perkins and W. H. Burnett	Newark, N. J	Oct.	14.
	Metal pipes, lining, with gutta-percha. (See Class IV, letter G.)				
15413	Metal planers	E. C. Cleveland	Worcester, Mass	July	29.
15379	Metal planers, cutter-stock for	Joshua Mason	Paterson, N. J	July	22.
15538	Metal, planing	Chester Van Horn	Springfield, Mass	Aug.	12.
14279	Metal, rolling	George H. Corliss and Elisha Harris	Providence, R. I	Feb.	19.
14332	Metal, sheet, bending	John Wright	Plantsville, Conn	Feb.	26.
14049	Metal, sheet, bending, machine for	Reuben Brady	New York, N. Y	Jan.	8.
15964	Metal, sheet, machine for bending	George W. Burling	Trenton, N. J	Oct.	28.
15069	Metal, sheet, shears for	Henry C. Dole	Adrian, Mich	June	10.
14878	Metal, sheet, working	S. B. Miller and E. W. Whitehead	Newark, N. J	May	13.
14738	Metal, sheet, working in	Samuel R. Shepard and Orson W. Stow	Plantsville, Conn	April	22.
14916	Metal, sheet, working in	I. B. Holmes	Cincinnatti, Ohio	May	20.
14115	Metals, casting	Ezra Ripley	Troy, N. Y	Jan	15.
16001	Metals, cutting	Robert Anderson and Aaron H. Vancleve.	Trenton, N. J	Nov.	4.
15733	Metals, granulating	John Feix	San Francisco, Cal	Sept.	16.
15190	Metals, tool for cutting	John Mooney	Providence, R. I	June	24.
14551	Metal tubes, seamless, making	William F. Brooks	New York, N. Y	April	1.
15348	Metal tubes, seamless, making	John J. Speed, jr., and John A. Bailey	Detroit, Mich	July	15.
15513	Metal ware, sheet, manufacture of	Theo. Gomme and C. E. A. Beaugrand	Paris, France	Aug.	12.
14724	Moulding, flasks for	James J. Johnston	Alleghany, Pa	April	22.
14637	Moulding, pipe, core-bar for	John Demarest, assignor to the J. L. Mott Iron Works.	Mott Haven, N. Y	April	8.
15054	Nail-machines	Daniel Dodge	Keeseville, N. Y	June	3.
15910	Nail machines	P. A. Wilbur	New Castle, Pa	Oct.	14.
15938	Nail-plate feeding	P. A. Wilbur	New Castle, Pa	Oct.	21; antedated Oct. 14.
15515	Nail-plate feeding apparatus	Adolphus Heddaeus	Pittsburgh, Pa	Aug.	12.
14474	Nail-plate feeding-machines	John P. Sherwood	Fort Edward, N. Y	Mar.	18.
14011	Nut-box	Richard H. Cole	St. Louis, Mo	Jan.	1.
14452	Nut-Machine	Robert Griffith	Alleghany, Pa	Mar.	18.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15001	Nut-machines	Richard H. Cole	St. Louis, Mo	June 3.
15861	Nut-machines	William E. Ward	Portchester, N. Y	Oct. 7.
16142	Nut-machines	Robert Griffiths	Philadelphia, Pa	Dec. 2.
16188	Nut-machines	Charles Ratcliff	Cincinnati, Ohio	Dec. 9.
15003	Nuts, making	Richard H. Cole	St. Louis, Mo	June 3.
15004	Nuts, metallic, machine for polishing	R. H. Cole and J. C. Cole	St. Louis, Mo	June 3.
16039	Ores, &c, crushing, rollers for	William Henry Plumb	New York, N. Y	Nov. 4.
14182	Ore-washer	William Ball	Chicopee, Mass	Feb. 5.
14388	Ore-washer	William L. Carter	Marietta, Pa	Mar. 11.
15544	Ore-washer	Hezekiah Bradford, assignor to Horatio Bogert.	New York, N. Y	Aug. 12.
15827	Ore-washer	Samuel Thomas	Allentown, Pa	Sept. 30.
14234	Pins in paper, sticking	Thaddeus Fowler	Waterbury, Conn	Feb. 12.
15871	Pins in paper, sticking	Charles Atwood, deceased, Lydia Atwood, and C. O. Crosby, administrators of.	New York, N. Y	Oct. 14.
15877	Pins in paper, sticking	Walker B. Bartram	Waterbury, Conn	Oct. 14.
15111	Pins, japanning	John J. Howe and Truman Piper, assignors to Howe Manufacturing Company.	Derby, Conn	June 10.
15091	Pins, machine for sticking	J. B. Terry	Hartford, Conn	June 10.
15112	Pins, machine for sticking	John J. Howe and Truman Piper, assignors to Howe Manufacturing Company.	Derby, Conn	June 10.
16199	Pins, machines for sticking	Chas. Atwood, deceased, Lydia Atwood and C. O. Crosby, administrators of.	New York, N. Y	Dec. 9
15874	Pins, papering	Chas. Atwood, deceased, Lydia Atwood and C. O. Crosby, administrators of.	New York, N. Y	Oct. 14.
15404	Pins upon paper or any other material, machine for sewing.	E. S. Woodford, assignor to James R. Keeler.	Winchester, Conn	July 22.
15860	Pipe fittings, gas, machine for finishing	Caleb C. Walworth	Boston, Mass	Oct. 7.

14866	Punching-measure	Edward Heath	Fowlersville, N. Y.	May 13.
	Reaming and tapping gas-fittings, machine for. (See Class V, Letter G.)			
14357	Riffle-boxes	F. R. Ford	Ophir, Cal	Mar. 4.
14137	Riveting-machine	Emmons Manley	Marion, N. Y	Jan. 22.
14897	Rolling file-blanks	Jas. N. Aspinwall, assignor to himself and Henry E. Staff.	Newark, N. J	May 13.
14552	Rolling railway-bars	John W. Brown	Savage Iron Works, Md	April 1.
16087	Safe, burglar proof	R. G. Holmes and W. H. Butler	New York, N. Y	Nov. 18.
14600	Sash-fastener	John J. Crooke	New York, N. Y	April 8.
15523	Sash-fastener	William Patton	Towanda, Pa	Aug. 12.
14028	Sash-lock	Joseph Marsh	Rochester, N. Y	Jan. 1.
15343	Sash-lock	Lucius Paige	Cavendish, Vt	July 15.
15857	Sash-lock	O. Redmond	Rochester, N. Y	Oct. 7.
15939	Sash, window, balance and fastener for	W. Worthen	Danville, N. H	Oct. 21.
	Scissors. (See Class XVII.)			
15700	Screw-cutter	James W. Lyon	Brooklyn, N. Y	Sept. 9.
15932	Screw-machine	John Moore	Madison, Ind	Oct. 21.
14041	Screw-machinery	Cullen Whipple, assignor to New England Screw Company.	Providence, R. I	Jan. 1.
15052	Screws, making	Cullen Whipple, assignor to New England Screw Company.	Providence, R. I	June 3.
14367	Scythe-rifles	Eugene J. Post	Vienna, N. J	Mar. 4.
	Shears, sheep. (See Class I.)			
16290	Shears, tinners'	Levi Skeels	Ostrander, Ohio	Dec. 23.
16038	Shutter-fastener	D. M. Lawrence	Cincinnati, Ohio	Nov. 4.
15064	Shutter-operator	Hiram Collins	Salisbury, Conn	June 10.
15287	Shutter-operator	Charles R. Edwards	Niagara city, N. Y	July 8.
15416	Shutter-operator	James R. Creighton	Boston, Mass	July 29.
15894	Shutters, bolts for	Philip Warner	Lancaster, Pa	June 10.
14912	Shutters, fastening, swing bolt for	John Gunner, jr	New York, N. Y	May 20.
14563	Slide-rests	Albert V. Hill	Hinsdale, N. Y	April 1.
	Soldering, furnace for. (See Class V, letter F.)			
14176	Soldering iron	Daniel Dod, assignor to himself and Henry F. Read.	Brooklyn, N. Y	Jan. 29.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14573	Soldering wire ferrules	Asahel Pierpont	New Haven, Conn	April 1.
15928	Spike-machine	C. A. McPhetridge	St. Louis, Mo	Oct. 21.
15468	Spike-machines	Moody Belknap	Boston, Mass	Aug. 5.
14083	Spikes, heading	E. H. Collier	Scituate, Mass	Jan. 15.
14566	Springs, spiral, former for	Vincent D. Lent	Chelsea, Mass	April 1.
16214	Steel, cast, making	John Nevill, assignor to Lemuel Curtis for an undivided half, and Nevill & Curtis, by J. P. Farrar, to Damascus Steel Manufacturing Company.	New York, N. Y	Dec. 9.
	Steel, compositions for working. (See Class IV, letter C.)			
14976	Steel, making	Franz Uchatius	Vienna, Austria	May 27; in Austria, March 14, 1855.
14435	Steel, welding	Homer Anderson	Garrattsville, N Y	Mar. 18.
16151	Tap, expanding	Harley Stone and Mason D. Cole	Worcester Mass	Dec. 2.
15195	Teeth, rake, machine for making	Charles R. Soule	Fairfield, Vt	June 24.
16213	Tubes, connecting	Joseph Nason	New York, N. Y	Dec. 9.
14603	Vise	Orlando B. Florey	Yellow Springs, Ohio	April 8.
14795	Vise	Charles Buss	Marlborough, N. H	May 6.
15051	Vise	Samuel Fahrney, assignor to Abraham Huffer and Benjamin Fahrney	Boonsboro', Md	June 3
15170	Vise	Horace B. Chaffee	New York, N. Y	June 24.
15277	Vise	Hiram C. Brown	Yellow Springs, Ohio	July 8.
15583	Vise	R. W. Thickins	Brasher Iron Works, N. Y	Aug. 19.
15562	Vise	Caleb C. Walworth	Boston, Mass	Oct. 7.
14192	Vise, bench	Samuel Gissinger	Alleghany, Pa	Feb. 5.
14560	Vise, bench	Benjamin G. Ball	Nashua, N. H	April 1.
14366	Vise, handle for	John T. Ogden	Boston, Mass	Mar. 4.
15706	Wire, cutting and drawing	F. Noette	Brooklyn, N. Y	Sept. 9.
14751	Wire fences, contraction and expansion in,	T. D. Burke, assignor to James Garrett	Chicago, Ill	April 22.

14424	Wrench	Erastus Tracy	Troy, N. Y	Mar. 11.
14779	Wrench	Bradford Rowe	Albany, N. Y	April 29.
15432	Wrench	Lorenzo D. Gilman	Troy, N. Y	Aug. 5.
15184	Wrench for gas pipe, &c	Gustavus A. Jenks	Worcester, Mass	June 24.
14546	Wrenches	Halsey D. Walcott, assignor to H. D. and M. E. Walcott.	Pawtucket, Mass	Mar. 25.
14528	Wrenches	William Warwick	Pittsburg, Pa	Mar. 25.
14571	Wrenches	Philip McManus	Brunswick, N. Y	April 1.
16158	Wrenches	Orin O. Witherell	New York, N. Y	Dec. 2.

CLASS III.—MANUFACTURES OF FIBROUS AND TEXTILE SUBSTANCES, *including machines for preparing fibres of wool, cotton, silk, fur, paper, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14322	Binding guides	James S. McCurdy	New York, N. Y	Feb. 26.
15836	Bleaching, washing and, use of the dash-wheel for.	James Wallace, jr	Glasgow, North Britain	Sept. 30. England, June 26, 1855.
15872	Button-holes, guides for working	Otis Avery	Bethany, Pa	Oct. 14.
	Calico printing machines, movement for the doctors of. (See Class XVIII, letter P.)			
16319	Callender rolls, manufacturing	John Worsley	Providence, R. I	Dec. 23.
15781	Carding engines, No. 1	A. D Shattuck	Grafton, Mass	Sept. 23.
15784	Carding engines, No 2	A. D. Shattuck	Grafton, Mass	Sept. 23.
16196	Carding engines, cleaning the top flats of	W. H. Walton	Brooklyn, N. Y	Dec. 9.
15313	Carding engines, machinery for cleaning the top flats of.	Horace Woodman	Biddeford, Me	July 8.
14481	Carding-machines, stripping top flats of	George Wellman	Lowell, Mass	Mar. 18. England, Nov. 25, 1853.

Classified List of Patents issued.—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15016	Carding-machines, wool	Foster Nowell	Lowell, Mass	June 3.
15005	Card teeth, for machine cards	John L. Tuttle	New York, N. Y.	Oct. 14.
15767	Carpeting, ingrain, manufacturing	David B. Kerr	New York, N. Y.	Sept. 23.
14585	Carpet lining, machines for making	John R. Harrington	Dayton, Ohio	April 1.
	Cloth, elastic, rubber, processes for making. (See Class IV, letter P.)			
16275	Clothing, card, trimming	E. B. Howe	Lowell, Mass	Dec. 23.
14659	Cloth, stretching, spreading rollers for	Jonathan J. Hillard	Fall River, Mass	April 15.
14725	Cotton cleaner	Jas. H. Kinyon and Jas. Hollingsworth	Chicago, Ill	April 22.
14965	Cotton gins	William B. Lindsay	New Orleans, La	May 27.
15381	Cotton gins	James B. Miles	Chicot, Ark	July 22.
15906	Cotton gins	John L. Tuttle	New York, N. Y.	Oct. 14.
15939	Cotton gins	James B. Mell	Riceboro', Ga	Oct. 21.
16022	Cotton gins	Wilson A. Purdon	Jackson, Miss	Nov. 4.
16096	Cotton gins	C. A. McPhetridge	St. Louis, Mo	Nov. 18.
15904	Cotton gins and machine cards, manufacturing cylinders for.	John L. Tuttle	New York, N. Y.	Oct. 14.
15138	Cotton gins: roller, feeder for	L. John Mallard and Wm. S. Baker	Riceboro', Ga	June 17.
15703	Delaines, manufacturing, process of	John Marland	West Bridgewater, Mass	Sept. 9.
15585	Fabrics, textile, water-proofing	Benjamin Weigert	New York, N. Y.	Aug. 19.
16293	Fibres, vegetable, preparing, for stuffing mattresses and cushions.	Werner Staufen	Prussia	Dec. 23; in England, Nov. 2, 1855.
16149	Fibrous manufactures, drying cylinders for	Horace W. Peaslee	Malden Bridge, N. Y.	Dec. 2.
14559	Hat-bodies and other articles, cloths for felting.	William Fuzzard	Charlestown, Mass	April 1.
15508	Hat-bodies, felting	E. R. Barnes and Jas. B. Blakslee	Brookfield, Conn	Aug. 12.
15627	Hat-bodies, felting, machinery for	Joseph Thomas	Brooklyn, N. Y.	Aug. 26.
14845	Hat-bodies, machinery for felting	James S. Taylor	Danbury, Conn	May 6.
15261	Hat-bodies, machinery for felting	Joseph Thomas	Brooklyn, N. Y.	July 1.
15290	Hat-bodies, machinery for felting	William Fuzzard	Cambridgeport, Mass	July 8.
15375	Hat-bodies, machines for felting	Lansing E. Hopkins	Brooklyn, N. Y.	July 22

15443	Hat-bodies, machinery for forming	D. G. Wells	New York, N. Y	Sept.	9.
15715	Hat-bodies, machinery for forming	James S. Taylor	Danbury, Conn.	Oct.	14.
15903	Hat-bodies, machinery for forming	Alva B. Taylor	Newark, N. J	Mar.	18.
14476	Hat-bodies, machinery for making	Sylvester H. Gray	Bridgeport, Conn	June	3.
15008	Hat-bodies, machines for felting	Albert Spencer	New York, N. Y	Mar.	25.
14521	Hat-bodies, machines for sizing	Samuel C. Ketchum	Brooklyn, N. Y	May	20.
14960	Hat-bodies, machines for sizing	Joseph Thomas	Brooklyn. N. Y	June	17.
15154	Hat-bodies, machines for sizing	Alva B. Taylor	Newark, N. J	Aug.	12.
15534	Hat-bodies, manufacture of				
	Hat-bodies, process of stiffening. (See Class IV, Letter P.)				
15929	Hat-bodies. sizing	Joseph McCracken	Brooklyn, N. Y	Oct.	21.
16305	Hat-bodies, sizing, machinery for	S H. Gray, assignor to Ives & Gray	Bridgeport, Conn	Dec.	23.
14862	Hat-felting machines	A. C. Fuller	Danbury, Conn	May	13.
14121	Hats, felting, machinery for	James S. Taylor	Danbury Conn	Jan.	15.
14330	Hats, hardening, machinery for	Russel Wildman	Charlestown, Mass	Feb.	26.
14401	Hats, ironing, machinery for	S. A. Kinsman and S. Field	Barre, Mass	Mar.	11.
14062	Hats, manufacture of	Joseph Johnson	New Orleans, La	Jan.	8.
14343	Hats, manufacturing	James W. Beebe	Brooklyn, N Y	Mar.	4.
14394	Hemp and flax, preparing, machinery for	Edward Davy, Nancy Davy, administratrix of.	Crediton, England	Mar. 11; in England, Nov. 13, 1852.	
16279	Hemp-brakes	Edward W. Lacy	Oak Park, Va	Dec.	23.
15166	Hemp-breaker	R. W. Bowen	Marshall, Mo	June	24.
15498	Hemp-breaker	Meriwether Thompson, jr	St. Josephs, Mo	Aug.	5.
16285	Hosiery, manufacture of	William H. McNary	Brooklyn, N. Y	Dec.	23.
15607	Hosiery, seamless, manufacturing	William Goddard	New York, N. Y	Aug.	26.
15314	Knitting-machine	J. B. & W. Aiken, assignors to H. & J. B. Aiken.	Franklin, N. H	July	8.
15435	Knitting-machines	John Nesmith	Lowell, Mass	July	29.
15484	Knitting-machines	Augustus J. and Demus Goffe	Cohoes, N. Y	Aug.	5.
16297	Knitting-machines	Clark Tompkins	Troy, N. Y	Dec.	23.
15006	Knitting-machines, needles for	Rufus Ellis	Boston, Mass	June	3.
14975	Knitting-machines, rotary	Clark Tompkins and John Johnson	Troy, N. Y	May	27.
15492	Knitting-machines, rotary	Sidney W. Park and Edgar S. Ells	Troy, N. Y	Aug.	5.
14590	Looms	E. B. Bigelow	Boston, Mass	April	8.
14971	Looms	Robert Pilson and Stephen P. Heath	Laurel, Md	May	27.
15186	Looms	Lucius J. Knowles	Warren, Mass	June	24.
15295	Looms	Wm. J. Hortsmann	Philadelphia, Pa	July	8.
16015	Looms	Lucius J. Knowles	Warren, Mass	Nov.	4.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
16306	Looms	B. G. Dawley, assignor to Z. Allen	North Providence, R. I	Dec. 23.
16271	Looms	A. L. Fuller	Clinton, Mass	Dec. 23.
14746	Looms for weaving bags	Samuel S. Thomas	Lawrence, Mass	April 22.
15291	Looms, jacquard	John Goulding	Springfield, Mass	July 8; England, Nov. 22, 1854.
15717	Looms, jacquard	James C. Cook, assignor to Hotchkiss & Merriman Manufacturing Company.	Waterbury, Conn	Sept. 9.
14237	Looms, power	Elijah Hall	Rochester, N. Y	Feb. 12.
14222	Looms, power	Erastus B. Bigelow	Boston, Mass	Feb. 12.
14285	Looms, power	John Johnson	Troy, N. Y	Feb. 19.
14358	Looms, power	J. Greenhalgh, sr.	Waterford, Mass	Mar. 4.
14644	Looms, power	Andrew Allen	Wilmington, Del	April 15.
16037	Looms, power	Alexander Smith and Halcyon Skinner	West Farms, N. Y	Nov. 4.
14292	Looms, temples for	Rensselaer, Reynolds	Stockport, N. Y	Feb. 19.
14938	Mules, self-acting	Wm. W. Wier and W. Grover	Holyoke, Mass	May 27.
15245	Netting-machines	John McMullen	Baltimore, Md	July 1.
15738	Paper, cutting, machine for	Hervey Law	New York, N. Y	Sept. 16.
14804	Paper from straw, processes for making	Wm. Clarke	Dayton, Ohio	May 6.
14621	Paper machines, felt-guide of	P. H. Wait	Sandy Hill, N. Y	April 8.
15852	Paper-making machines, feeding pulp to	Israel Kinsey	Hohokus, N. J	Oct. 7.
16278	Paper pulp engines	Joseph Kingsland, jr. (B.)	Franklin, N. J	Dec. 23.
16239	Paper pulp, grinding, machinery for	Joseph Kingsland, jr	Franklin, N. J	Dec. 16.
16316	Paper pulp, grinding, process of	Joseph Kingsland, jr. (C.)	Franklin, N. J	Dec. 23.
14218	Paper, sand, machinery for cutting	William Adamson	Philadelphia, Penn	Feb. 12; antedated August 12, 1855.
16162	Paper stock, engines for grinding	V. O. Balcom & C. H. Hill	Bedford, Mass	Dec. 2.
14165	Paper stock, flocks and, machines for cutting	Joseph N. Pitts	Blackstone, Mass	Jan. 29.
14938	Rope and cordage, machinery for making	William R. Dutcher, assignor by intermediate assignment to Harvey Church.	Troy, N. Y	May 20.
14194	Rope, machinery for making	O. S. Hazard and Isaac Peck	Coventry, R. I	Feb. 5.

15623	*Setting needles, filling, machinery or*	*S. F. Stanton, assignor to J. M. and S. F. Stanton.*	*Manchester, N. H.*	*Aug.*	*26.*	
14283	Sewing-guides	Seth P. Chapin	New York, N. Y.	Feb.	19.	
14022	Sewing-machines	P. L. Slayton	Madison, Ind	Jan.	1.	
14141	Sewing-machines	John O'Neil	Xenia, Ohio	Jan.	22.	
14207	Sewing-machines	Alfred Swingle, assignor to Elmer Townsend.	Boston, Mass	Feb.	5.	
14324	Sewing-machines	T. J. W. Robertson	New York, N. Y.	Feb.	26.	
14393	Sewing-machines	Henry R. David	New York, N. Y.	Mar.	11.	
14433	Sewing-machines	W. C. Watson, assignor to Ira W. Gregory.	New York, N. Y.	Mar.	11.	
14475	Sewing-machines	Isaac M. Singer	New York, N. Y.	Mar.	18.	
15396	Sewing-machines	A. Swingle, assignor to E. Townsend	Boston, Mass	July	22.	
15469	Sewing-machines	Sherburn C. Blodgett	Philadelphia, Penn	Aug.	5; antedated Feb. 5, 1856.	
15470	Sewing-machines	Joseph Bond, jr	Philadelphia, Penn	Aug.	5.	
15635	Sewing-machines	A. F. Johnson, assignor to himself and F. A. Houghton.	Boston, Mass	Aug.	26.	
15695	Sewing-machines	Charles R. Gardner	Detroit, Mich	Sept.	9.	
16026	Sewing-machines	S. H. Roper	Roxbury, Mass	Nov.	4.	
16030	Sewing-machines	Isaac M. Singer	New York, N. Y.	Nov.	4.	
16136	Sewing-machines	William C. Watson, assignor to Watson, Wooster, & Knight	New York, N. Y.	Nov.	25.	
16234	Sewing-machines	James E. A. Gibbs	Mill Point, Va	Dec.	16.	
16237	Sewing-machines	Lewis Jennings	New York, N. Y.	Dec.	16.	
16281	Sewing-machines	William R. Landfear	Manchester, Conn	Dec.	23.	
16321	Sewing-machines	Jerome B. Woodruff	Washington, D. C.	Dec.	23.	
16315	Sewing-machines	A. F. Johnson and F. A. Houghton	Boston, Mass	Dec.	23.	
14956	Sewing machines, cases for	William O. Grover	Boston, Mass	May	27.	
15402	Sewing-machines, folding guides for	Burritt C. Boyes, assignor to B. C. Boyes and H. Dercum.	Philadelphia, Penn	July	22.	
15020	Sewing-machines for binding hats	Isaac M. Singer	New York, N. Y.	June	3.	
16120	Sewing-machines, stitches for	A. F. Johnson	Boston, Mass	Nov.	25.	
	Sewing-pins upon paper or any other material, machine for. (See Class II, letter P.)					
15535	Spinning frames	Thomas W. Taylor	Cannelton, Ind	Aug.	12.	
16028	Spinning, throstle, machine	Joel Smith	Northbridge, Mass	Nov.	4.	
14482	Spinning wheels	Lyman Wight	Benton, Penn	Mar.	18.	
15131	Traveller, brushes for cleaning	Henry S. Houghton	Blackstone, Mass	June	17.	

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14858	Thread, trebling single, machinery for	Lucius and Ira Dimock	Hebron, Conn	May 13.
14969	Thread, winding, from skeins	Marcus Ormsbee	Boston, Mass	May 27.
16164	Thread, covering, with wool	A. L. Fuller	Clinton, Mass	Dec. 2.
15308	Warps, dressing, brushes for	Samuel Taylor	Cambridge, Mass	July 8.
14061	Weavers' harness, machinery for making	George L. Jenks	Providence, R. I	Jan. 8.
16029	Weaving long warps	John C. Smith	New Hartford, Conn	Nov. 4.
15415	Weaving seamless bags, harness for	Algernon L. Cole	Windham, Me	July 29.
16218	Weaving shade cord, machinery for	Thomas Nelson	Troy, N. Y	Dec. 16.
14463	Winding frames, cone tubes for	John McCrone	Thompsonville, Conn	Mar. 18.
	Wool-breaking, compositions for. (See Class IV, Letter C.)			
15856	Wool, cleaning, machinery for	Andrew W. Putnam	Brooklyn, N. Y	Oct. 7.
15268	Wool, combing, machinery for	Wm. H. Walton, assignor to W. H. Walton and J. E. Winants.	Brooklyn, N. Y	July 1.
	Woollen and other fabrics, printing, machinery for. (See Class XVIII, Letter P.)			
	Woven wire, process of painting or varnishing. (See Class IV, Letter P.)			
14129	Yarn-dressing frames	Abner J. Sutherland	Lowell, Mass	Jan. 15.
16117	Yarns, cotton, manufacturing	George G. Henry	Mobile, Ala	Nov. 25.
14815	Yarns, felted, manufacturing	Moses A. Johnson	Lowell, Mass	May 6.

CLASS IV.—CHEMICAL PROCESSES, MANUFACTURES, AND COMPOUNDS, *including medicines, dyeing, color-making, distilling, soap and candle making, mortars, cements, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent
				1856.
14722	Acid, phosphoric, preparing, as a substitute for other solid acids.	E. N. Horsford	Cambridge, Mass	April 22.
15222	Acid, sulphuric, concentrating apparatus for	Wm. T. Clough	Newark, N. J	July 1.
15662	Ale and beer coolers	James Macintire	Somerville, Mass	Sept. 2.
15957	Alkalies, caustic, devices for putting up	George Thompson	East Tarentum, Pa	Oct. 21.
15804	Alloys, journal box	John Fidler	New Albany, Ind	Sept 30.
15934	Alum, making, preparing clay for	Henry Davis Pochin	Salford, Great Britain	Oct. 21; in England, January 30, 1855.
14925	Ash-leaching apparatus Bagasse furnaces. (See Class V, Letter F.)	Philip Perdew and Alex. W. Brinkerhoff.	Wyandot, Ohio	May 20.
15956	Blacking, stove	William Thomas, jr	Hingham, Mass	Oct. 21.
15983	Bleaching ivory, apparatus for	John Phyfe	New York, N. Y	Oct. 28.
15590	Bleaching ivory, frames for	A. C. Breckenridge, assignor to Julius Pratt & Co.	Meriden, Conn	Aug 19.
16100	Bleaching process Bleaching, washing and, use of the dash wheel for. (See Class III, Letter B.)	Julius A. Roth	Philadelphia, Pa	Nov. 18.
14662	Candle cutting apparatus	John Jones	Brooklyn, N. Y	April 15.
16211	Candle dipping machine	C. A. McPhetridge	St. Louis, Mo	Dec. 9.
14376	Candle dipping machines	Vincenzo Squarza	New York, N. Y	Mar. 4.
15668	Candle moulding machine	John Robingson	New Brighton, Pa	Sept. 2.
15968	Candle mould machine	William C. Childs	Boston, Mass	Oct. 28.
16056	Candle mould machine	August Hengstenberg	Muscatine, Iowa	Nov. 11.
14397	Candles, making, preparation of tallow for	Francois Garcin	Philadelphia, Pa	Mar. 11.
15821	Candles, many-wicked	Benjamin D. Sanders	Holliday's Cove, Va	Sept. 30.
16208	Cement, incorporating bituminous liquids with wet earths for a.	W. H. Johnson	Springfield, Ill	Dec. 9.
15275	Cements, roofing	Horace Billings	Beardstown, Ill	July 8.
16304	Charcoal burning	Andrew Grimes, assignor to Charles Day.	Lancaster, N. Y	Dec. 23.
16170	Composition, alloy	Time Brown	Georgetown, N. Y	Dec. 9.

Classified List of Patents issued—Continued.

No.	Invention or discovery.	Patentees.	Residence.	Date of patent.
				1856.
14037	Compositions for breaking wool	Andrew H. Ward, jr	Boston, Mass	Jan. 1.
14832	Compositions for stuffing leather	John Rose	Newark, N. J	May 6.
15161	Compositions for working steel	Horace Vaughn	Providence, R. I	June 17.
	Compositions, pre-tanning. (See Class XVI, letter T.)			
15551	Compound, plastic	Lewis Buckholtz	Richmond, Va	Aug. 19.
14911	Compounds, artificial decoloring	Francis Gerau	New York, N. Y	May 20.
15563	Compounds, felting	Lansing E. Hopkins	Brooklyn, N. Y	Aug. 19.
15520	Compounds, paint, vehicle for	F. Kulhmann	Lille, empire of France	Aug. 12.
15806	Compound wherewith to manufacture paint	Isaac Gattman	Philadelphia, Pa	Sept. 30.
14053	Disinfecting fecal matter	D Contaret	New York, N. Y	Jan. 8.
15959	Dying	John P. Derby, assignor to Salisbury Manufacturing Co.	Amesbury, Mass	Oct. 21.
15361	Dye-stuff, vegetable, preparing a	Friedrich E. Schmidt	New York, N. Y	July 15.
14418	Extracts, apparatus for making	Abraham Steers	Medina, N. Y	Mar. 11.
15158	Fats, saponifying	George F. Wilson and George Payne	Belmont, Vauxhall, England	June 17.
15517	Filtering sand for cider	Ira Holmes	Leicester, N. Y	Aug. 12.
16129	Gas cock and swinging joint	Charles F. Thieme	Philadelphia, Pa	Nov. 25.
14368	Gaseous pressure, method of bottling fluids under.	A. Quantin	Philadelphia, Pa	Mar. 4.
15973	Gas generator	Charles A. Howard	Pontiac, Mich	Oct. 28.
14926	Gas generators, construction of	Max Pettenkofer and Carl Ruland	Munich, Bavaria	May 20; Bavaria, Feb 24, 1851.
14045	Gas, illuminating, making	N. Aubin	Albany, N. Y	Jan. 8.
15267	Gas, purifiers, dry lime	C. F. Werner and C. Deutschmann	New York, N. Y	July 1.
15010	Gas retort bench, arrangement of a	John G. Hock	Newark, N. J	June 3.
14934	Gas retort cleaners	Samuel H. and Matthew C. Walker	Lancaster, Pa	May 20.

14811	Gum elastic cloth, making	Henry G. Tyer and John Helm	Ballard Vale, Mass	May 6; Jan. 9.	
14972	Gutta percha, apparatus for cleaning	James Reynolds	New York, N. Y	May	27.
15439	Gutta percha, apparatus for covering wire with	James Reynolds	New York, N. Y	July	29.
16215	Gutta percha cord, making	James Reynolds	New York, N. Y	Dec.	9.
	Gutta percha, "dumb jockey," the "cross" or "horns" of saddle tree being made of. (See Class XVI, letter S.)				
15087	Gutta percha, feed-apparatus for working	James Reynolds	New York, N. Y	June	10.
14929	Gutta percha, lining metal pipes with	A. D. Puffer	Somerville, Mass	May	20.
15086	Gutta percha tubing, mandrils for making	James Reynolds	New York, N. Y	June	10.
	India-rubber belting and banding, manufacture of. (See Class XII, letter B.)				
15067	India-rubber, cleaning	Austin G. Day	Seymour, Conn	June	10.
14811	India-rubber cloths, elastic, repairing	Nathaniel Hayward	Colchester, Conn	May	6.
15947	India-rubber hose, modes of making	Jacob H. Howell	Ansonia, Conn	Oct.	21.
14657	India-rubber, manufacture of	Nathaniel Haywood	Colchester, Conn	April	15.
16069	India-rubber, process for cleaning	T. Sault	Seymour, Conn	Nov.	11.
16269	India-rubber thread, machines for cutting	Henry Davenport	New York, N. Y	Dec.	23.
15531	India-rubber, treating	William F. Shaw	Boston, Mass	Aug.	12.
15998	India-rubber, vulcanized, working over	Henry Torstrick	Hoboken, N. J	Oct.	28.
15942	Lard-rendering kettles	John J. Bate	Brooklyn, N. Y	Oct.	21.
15391	Liquids used as a motive power	John C. Fr. Salomon	Baltimore, Md	July	22.
	Lubricating car-axle and other journals. (See Class X, letter A)				
14791	Lubricating grist-mill spindles, apparatus for	Clayton Brown, sr	Richmond, Ind	May	6.
16298	Lubricating spindle steps	Joseph Welch	Philadelphia, Pa	Dec.	23.
	Lubricating the sheave-pin of ship's blocks, means for. (See Class VII, letter S.)				
15690	Lubricating throstle spindles	George W. Doherty and Thos. G. McLaughlin.	Crozerville, Pa	Sept.	9.
14236	Lubricator	William Gee	New York, N. Y	Feb.	12.
14352	Lubricator	W. E. Everett	New York, N. Y	Mar.	4.
14549	Lubricator	Edw. J. Baker	Baltimore, Md	April	1.
14797	Lubricator	Abel Braer	Saugatuck, Conn	May	6.
15775	Lubricator	N. W. Pomeroy	Meriden, Conn	Sept.	23.
16018	Lubricator	James F. Monroe	Fitchburg, Mass	Nov.	4.
14163	Mastic for covering walls	Adolph C. Moestue	Geneva, Ill	Jan.	29.
15553	Milk, concentration of	Gail Borden, jr	Brooklyn, N. Y	Aug.	19.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
	Oil-box for axles with conical journals. (See Class XII, letter O.)			
16255	Oil, coal, apparatus for	Richard Shroder, assignor to J. L. Russell, R. Shroder, and A. Anderson.	Darlington, Pa	Dec. 16.
15643	Oil, crude, from mineral coal, distilling apparatus for.	Cummings, Cherry	Pittsburg, Pa	Sept. 2.
15506	Oil from bituminous, preparing	L. & W. Atwood	Waltham, Mass	Aug. 12.
15505	Oil from cannel coal, production of	L. & W. Atwood	Waltham, Mass	Aug. 12.
14610	Oil from cotton seed, processes for extracting	Augustus A. Hayes, assignor to George Ashman and Charles Phelps	Boston, Mass. Springfield, Mass	April 8.
15642	Oil obtained from mineral coal, purifying, apparatus for.	Cummings Cherry	Pittsburg, Pa	Sept. 2.
15644	Oil, preparation of drying, from oils extracted from bituminous minerals.	Cummings Cherry	Pittsburg, Pa	Sept. 2.
15418	Oils, lubricating, pyrogenous	Samuel Downer and Joshua Merrill	Boston, Mass	July 29.
14042	Oils, treating	Philo Marsh, assignor to Marsh & Howland.	South Adams, Mass	Jan. 1.
15243	Pastiles, disinfecting	Andrew Lanergan	Boston, Mass	July 1.
	Powder, blasting. (See Class IX, letter B.)			
15972	Preserving dead bodies, method of	J. Anthony, Gaussardia	Washington, D. C	Oct. 28.
14464	Processes for making elastic rubber cloth	R. McMullin	New Brunswick, N. J	Mar. 18.
	Processes for making paper from straw. (See Class III, letter P.)			
14457	Processes for making transparent window-shades.	Edward R. Kernan	Pittsburg, Pa	Mar. 18.
15950	Processes for silvering mirrors	Tony Petitjean	Tottenham Court Road, England.	Oct. 21.
15542	Processes of separating silver from the ore	W. Ziervogel	Treskon, Pa	Aug. 12.
16179	Process of mashing grain	Elie Joseph Halnaut	Kingdom of Belgium	Dec. 9.
15953	Process of coating metals with metals	Joseph Poleux	New York, N. Y	Oct. 21.
14320	Process of painting or varnishing woven wire.	William Lincoln	Oakham, Mass	Feb. 26.

15594	Process of preparing linseed, &c., for pressing in extracting oil.	Charles Moore	Trenton, N. J.	Aug. 19.
16189	Process of preparing tannate of lime	Obadiah Rich	Cambridge, Mass	Dec. 9; England, Dec. 8, 1854.
15664	Process of stiffening hat bodies	Joseph McCracken	Brooklyn, N. Y	Sept. 2.
16111	Process of treating feldspar for a manure	Charles Bickell	Baltimore, Md	Nov. 25.
15598	Salt, evaporating, apparatus for	William T. Clough	Newark, N. J.	Aug. 26.
15411	Salt, evaporation of, solar, apparatus for	John F. Boynton	Syracuse, N. Y.	July 29.
14813	Salt evaporators	B. L. Hood and C. P. Monroe	Albany, N. Y.	May 6.
15884	Salt evaporators	J. L. Humphrey	Syracuse, N. Y	Oct 14.
15975	Salts, evaporators for	J. R. Hopkins	Auburn, N. Y.	Oct. 28.
15432	Soap boiling apparatus	Campbell Morfit	Baltimore, Md	July 29.
15980	Soap mixtures	George C. Lawrence	Winchester, Mass	Oct. 28.
15951	Soaps, rosin	Augustus Pfaltz	Saxonville, Mass	Oct. 21.
15838	Soda fountains	J. F. Boynton	Syracuse, N. Y	Oct. 7.
16051	Sugar draining apparatus	Gustavus Fincken	Brooklyn, N. Y	Nov. 11.
15694	Sugar, evaporating, pans for	Samuel H. Gilman	New Orleans, La	Sept. 9.
14717	Sugar evaporators	Samuel H. Gilman	New Orleans, La	April 22.
15421	Sugar evaporators	Samuel H. Gilman	New Orleans, La	July 29.
14129	Vapor, hydrocarbon, apparatus	Ari Davis, Asahel Davis, and	Lowell, Mass	Jan. 15.
		Charles Cunningham, assignors to	Nashua, N. H	
		A. W. Adams	Lowell, Mass.	
		J. B. Richardson, George W. Pettes and	Boston, Mass	
		S. F. Sanborn	Winchester, Mass	
14135	Vats, tan, arrangement of	David Kennedy	Reading, Pa	Jan. 22.
	Zinc white, furnaces for. (See Class V, letter F.)			
15448	Zinc white, oxide of, apparatus for purifying	Joseph Wharton	Philadelphia, Pa	July 29.

CLASS V.—CALORIFICS, *comprising lamps, fire-places, stoves, grates, furnaces for heating buildings, cooking apparatus, preparation of fuel, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15155	Bakers, heating, coal	Jesse D. Wheelock	Mayville, Wis	June 17.
14386	Blast, hot, apparatus	Lafayette Blair	Painesville, Ohio	Mar. 11.
14875	Blow pipes	O. G Lawson	Crestline, Ohio	May 13.
15774	Blow pipes	S. B. Palmer	Tully, N. Y	Sept. 23.
14403	Blow pipes, spirit	Horatio N. Macomber	Lynn, Mass	Mar. 11.
	Boiler, steam, and kettles, combined. (See Class VI, letter B.)			
15633	Boiling, device for preventing liquids from, over the sides of vessels.	John Liblong, assignor to Edward Brown and James R. Case.	Waterbury, Conn.	Aug. 26.
14271	Caldrons	Henry Newsham	Baltimore, Md	Feb. 12.
14074	Candle sticks	Abner Whiteley	Springfield, Ohio	Jan. 8.
14641	Cans, oil	Thos. Priestly, assignor to Daniel Holden	Saxonville, Mass	April 8.
15986	Cans, oil	James M. Thompson	Holyoke, Mass	Oct. 28.
15206	Cans, safety, for burning fluids	S. E. Winslow	Philadelphia, Pa	June 24.
14619	Charring wood	Sandford S. Perry	Charles City county, Va	April 8.
15726	Chimney cap	W Brownell	Newport, R. I	Sept. 16.
15536	Chimney cowl	George W. Thatcher	Philadelphia, Pa	Aug. 12.
15916	Chimney cowl	T. W. Chatfield	Utica, N. Y	Oct. 14.
15584	Chimney cowl, self-cleaning	C. H. Watkins	New York, N. Y	Aug. 19.
14171	Chimney cowls	Charles F. Thomas	Taunton, Mass	Jan. 29.
16246	Chimney cowls	Patrick Mihan	Boston, Mass	Dec. 16.
15458	Chimney dampers	Theodore F. Engelbrecht, assignor to himself and Thomas C. Nye.	New York, N. Y	July 29.
15645	Chimneys, apparatus for arresting carbon in	Hezekiah Chase	Lynn, Mass	Sept. 2.
14650	Chimneys, grates and dampers for, arrangement of.	Jacob Cohen	New York, N. Y	April 15.
15779	Chimney tops, self-regulating draught for	J. A. Royce	Lee, Mass	Sept. 23.
	Coal breakers. (See Class XXII, letter C.)			
15519	Coal hods	Cyrus F. Newland	Buffalo, N. Y	Aug. 12.
14828	Cooking apparatus	George Pierce	New York, N. Y.	May 6.

	ing fire-pots of.	Edward Whiteley		June 17.
14622	Cooking by steam, boilers for	Edward Whiteley	Boston, Mass	April 8.
14340	Cooking with quick lime, apparatus for	W. W. Albro	Binghampton, N. Y	Mar. 4.
14510	Cooling and ventilating rooms, &c., method of.	A. S. Lyman	New York, N. Y	Mar. 25.
16010	Coal or draught accelerators for steamers	P. C. Guiou	Cincinnati, Ohio	Nov. 4.
14181	Dryers, corn	Solomon Bernheisel	Elliottsburg, Pa	Feb. 5.
14494	Dryers, fruit or grain	Charles W. Davis	Newark city, N. J	Mar. 25.
16259	Drying grain in the mass, apparatus for	John C. Pedrick	Washington, D. C.	Dec. 16.
14588	Drying wet grain, &c., machines for	Stephen V. Appleby	New York, N. Y	April 8.
	Dust from railroad cars, method of excluding. (See Class X, letter C.)			
15331	Fire-backs for fire-places	Samuel M. Echols	Lafayette, Ala	July 15.
15089	Fire-engines, method of applying horse-power to.	David Russell	Lockport, N. Y	June 10.
14447	Fire-places	Calvin Dodge	Pittsburg, Pa	Mar. 18.
15362	Fire-places, fenders for	John W. Truslow	Lewisburg, Va	July 15.
	Fires, forge. (See Class II, word "Forge.")			
14252	Fires, method of extinguishing	Lea Pusey	Philadelphia, Pa	Feb. 12.
15271	Fires, method of extinguishing	Robert B. Armitage	Philadelphia, Pa	July 8.
15688	Fuel, artificial	Robert Courtney	Albany, N. Y	Sept. 9.
14063	Fuel, wet, mode of burning	John F. Manahan	Lowell, Mass	Jan. 8.
14908	Furnace, annealing	J. Joseph Eagleton	New York, N. Y	May 20.
14008	Furnace for soldering	Philo Brown	Waterbury, Conn	Jan. 1.
14153	Furnace grates, locomotive	George R. Comstock	Manheim, N. Y	Jan. 29.
16287	Furnace, hot-air	John H. H. Perkins	Utica, N. Y	Dec. 23.
15832	Furnaces	Richard Wells	Baltimore, Md	Sept. 30.
15613	Furnaces, air-heating	John Liddle	New York, N. Y	Aug. 26.
14812	Furnaces, bagasse	Abraham Hager and Youngs Allyn	Baton Rouge, La	May 6.
15481	Furnaces, bagasse	Samuel H. Gilman	New Orleans, La	Aug. 5.
	Furnaces, blast, fluxing. (See Class II, letter F.)			
14892	Furnaces for heating soldering irons	James Wilson	Brandywine, Del	May 13.
14298	Furnaces for heating slugs for the use of hatters, tailors, and others.	Russel Wildman	Charlestown, Mass	Feb. 19.
15009	Furnaces, gas-consuming	Jacob Green	Philadelphia, Pa	June 3.
15830	Furnaces for zinc white	Samuel Wetherill	Bethelhem, Pa	Sept. 30.
15018	Furnaces, glass	Samuel Richards	Philadelphia, Pa	June 3.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15389	Furnaces, glass	Samuel Richards	Philadelphia, Pa	July 22.
14196	Furnaces, hot-air	Samuel Macferran	Philadelphia, Pa	Feb. 5.
16055	Furnaces, house, method of regulating the draught of.	Samuel L. Hay and H. B. Osgood	Reading, Mass	Nov. 11.
16317	Furnaces, smoke-consuming	John Case and Isaac Soules	Amsterdam, N. Y	Dec. 23.
14601	Furnace, tempering	Robert B. Fellows	Shelburne Falls, Mass	April 8.
15791	Furnaces, warm-air	William M. Wright	Pittsburg, Pa	Sept. 23.
14674	Furnaces with fuel, apparatus for feeding	Alex. McD. Sprague	Mobile, Ala	April 15.
14233	Gas and steam cooking apparatus	John S. Gallaher, jr	Washington, D. C	Feb. 12.
14091	Gas-burners	C. A. Cummings and C. Douglass	New London, Conn	Jan. 15.
14737	Gas-burners	W. F. Shaw	Boston, Mass	April 22.
14822	Gas-burners	James Neal	Boston, Mass	May 6.
16176	Gas-burners	Job Cornell and Barrett McDougal	New York, N. Y	Dec. 9.
15614	Gas-burners, automatic attachment to	A. R. Marshall	Stratford, Conn	Aug. 26.
15219	Gas-fittings, reaming and tapping, machine for	Henry A. Chapin	Springfield, Mass	July 1.
14325	Gas, heating by, apparatus for	Wm. F. Shaw	Boston, Mass	Feb. 26.
14414	Gas, heating or cooking by, apparatus for	Wm. F. Shaw	Boston, Mass	Mar. 11.
16031	Gas, heating or cooking by, apparatus for	Wm. F. Shaw	Boston, Mass	Nov. 4.
14770	Gas-metres, dry, construction of	Wm. Lyon and Charles W. Dickinson	Newark, N. J	April 29.
16073	Gas-regulator	W. G. Sterling	Bridgeport, Conn	Nov. 11.
14893	Gas-regulators	Henry Waterman	Hudson, N. Y	May 13.
15028	Gas-regulators	Marshall Wheeler	Honesdale, Pa	June 3.
14437	Gas, roasting and broiling by, apparatus for	James B. Blake	Worcester, Mass	Mar. 18.
14142	Grate-bars	John T. Osborn	New Orleans, La	Jan. 22.
14642	Heating and ventilating buildings, apparatus for.	John Sawyer, assignor to himself and Thomas Hale.	Fitchburg, Mass	April 8.
14743	Heating boilers, steam-pressure regulating apparatus for	George S. G. Spence	Boston, Mass New H...	April 29

14346	Heating of buildings, regulating the arrangement of steam-tubing for.	Robert, Cornelius	Philadelphia, Pa	[illegible]
14317	Lamps	William M. Kimball	Rochester, N. Y	Feb. 26.
15636	Lamps	Peter C. Guiou and Paul K. Wambaugh, assignors to Paul K. Wambaugh.	Cincinnati, Ohio	Aug. 26.
14478	Lamps, argand, for burning rosin oil	Isaac Van Bunschoten	New York, N. Y	Mar. 18.
14248	Lamps, argand, wick-holders for	Christopher Moeller	Newark, N. J	Feb. 12.
14492	Lamps, Carcel, regulating the flow of oil to the wick in.	Abraham Coates	New York, N. Y	Mar. 25.
15724	Lamps for burning fluids	Salmon Bidwell	Rochester, N. Y	Sept. 9.
14369	Lamps for burning rosin oil	Prentice Sargent	Newburyport, Mass	Mar. 4.
15686	Lamps, fluid, extinguisher for	W. B. Carpenter	Brooklyn, N. Y	Sept. 9.
15198	Lamps, fountain	N. Linden	Jersey City, N. J	June 24.
14994	Lamps, gas burning	Solomon Andrews	Perth Amboy, N. J	June 3.
14727	Lamps, hydrocarbon vapor	Alonzo M. Mace	Springfield, Mass	April 22.
15829	Lamps, hydrocarbon vapor	Thomas Varney	San Francisco, Cal	Sept. 30.
14806	Lamps, lard	Samuel Davis	New Holland, Pa	May 6.
15364	Lamps, lard	Jeremiah S. Senseny, assignor to himself and G. H. Merklein.	Chambersburg, Pa	July 15.
15172	Lamps, locomotive	Samuel E. Cleveland and H. B Cleveland.	Buffalo, N. Y	June 24.
14942	Lamps, locomotive and railroad	John Stuber, assignor to John Carton	Utica, N. Y	May 20.
15305	Lamps, locomotive reflector	Frederick J. Seymour	Waterbury, Conn	July 8.
16180	Lamps, pocket	H. L. Hervey	Quincy, Ill	Dec. 9.
15547	Lamps, vapor burning	Samuel Whitemarsh, assignor to William J. Demorest.	Northampton, Mass	Aug. 12.
14201	Lanterns	Francis Morandi	Boston, Mass	Feb. 5.
15782	Lanterns	Sinclair Shannon	Buffalo, N. Y	Sept. 23.
14087	Lanterns, glasses of, removable flanch bars for securing the.	Hezekiah Crout	Baltimore, Md	Jan. 15.
14741	Lanterns, lamps to, method of fastening	Emile Sirret and Wm. H. Scott	Buffalo, N. Y	April 22.
14608	Lanterns, submarine	Charles M. Gould and Charles B Lamb.	Worcester, Mass	April 8.
	Matches, friction, machine for manufacturing. (See Class XXII.)			
14229	Oil cans	Levi S. Enos	Olean, N. Y	Feb. 12.
14825	Ovens	Jesse Ohmert	Mount Morris, Ill	May 6.
15753	Ovens	H. Ball	New York, N. Y	Sept. 23
16143	Ovens	John P. Hayes	Philadelphia, Pa	Dec. 2

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15422	Ovens, bake	John P. Hayes	Philadelphia, Pa	July 29.
14895	Ovens of cooking ranges	Jacob S. Williams	St. Louis, Mo	May 13.
	Peat, digging, machine for. (See Class IX, letter P.)			
14200	Pokers, fire	Rev. George R. Moore	Mount Joy, Pa	Feb. 5.
14591	Ranges, cooking	John Plant and Charles G. Ball	Washington, D. C	April 8.
15093	Registers and ventilators	Edward A. Tuttle	Williamsburg, N. Y	June 10.
	Safes for ships and other vessels. (See Class VII, word "Ships.")			
14754	Shovel and tongs, combined	Samuel Huffman, assignor to Samuel Huffman and J. D. Browne.	Richmond, Va	April 22.
14505	Sifters, ash	Charles Jones	Brooklyn, N. Y	Mar. 25.
14609	Sifting coal and other articles, machines for	Samuel Harris	Springfield, Mass	April 8.
14567	Spark-arresters	Stimmel Lutz	Philadelphia, Pa	April 1.
14398	Spark-conductors for locomotive trains	Peter C. Guiou	Cincinnati, Ohio	Mar. 11.
14318	Steam, domestic, generators	James T. King	New York, N. Y	Feb. 26.
14312	Steam-heating apparatus, air, cock for	Stephen J. Gold	New Haven, Conn	Feb. 26.
15495	Stove, cooking, combined, steam and hot air	John Shopland	Honesdale, Pa	Aug. 5.
14461	Stoves	James B. Maybury	Jeffersonville, Ind	Mar. 18.
15984	Stoves and furnaces	S. T. Savage	Albany, N. Y	Oct. 28.
16268	Stoves and furnaces	Theodore Cook	Springfield, Mass	Dec. 23.
14362	Stoves and furnaces for railroad cars and other purposes.	Dennis G. Littlefield	Albany, N. Y	Mar. 4.
14467	Stoves and furnaces, sectional, fire-pots for	Merrit Peckham	Utica, N. Y	Mar. 18.
14648	Stoves, coal	William W. Binney	Seneca Falls, N. Y	April 15.
14278	Stoves, cooking	Abner Burnham	Albany, N. Y	Feb. 19.
15023	Stoves, cooking	William B. Treadwell	Albany, N. Y	June 3.
15318	Stoves, cooking	Henry S. George, assignor to Henry S. George and George Gratton.	Syracuse, N. Y	July 8.
15952	Stoves, cooking	Samuel Pierce	Troy, N. Y	Oct. 21.
15971	Stoves, cooking	J. W. H. Doubler	Lena, Ill	Oct. 28.

14356	Stoves, furnaces, &c., supplementary grating for.	D. F. Poering	Geneva, N. Y.	April 28.
14888	Stoves, gas	John Starrett and N. J. Wier	Philadelphia, Pa	Mar. 4.
14064	Stoves, gas-cooking	H. B. Musgrave	Lowell, Mass	May 13.
14940	Stoves, ventilating regulators and damper for.	John Magee, assignor to John Magee and William J. Towne.	Cincinnati, Ohio	Jan. 8.
			Lawrence, Mass	May 20.
	Ventilating railroad cars. (See Class X, letter C.)			
	Ventilating ships, etc., method of. (See Class VII, letter S.)			

Class VI.—Steam and gas engines, *including boilers and furnaces therefor, and parts thereof.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15742	Boiler furnace, locomotive and steam	William P. Parrott	Boston, Mass	Sept. 16.
14230	Boilers, incrustations of, devices for removing.	William E. Everett and M. Minthorne Thompson.	New York, N. Y.	Feb. 12.
14408	Boilers, steam	Leonard Phleger	Tamaqua, Penn	Mar. 11.
14523	Boilers, steam	O. M. Stillman and Stephen Wilcox, jr.	Westerly, R. I.	Mar. 25.
14555	Boilers, steam	F. P. Dimpfel	Philadelphia, Penn	April 1.
14721	Boilers, steam	C. B. Hoard	Watertown, N. Y.	April 22.
15803	Boilers, steam	David H. Fowler	New Orleans, La	Sept. 30.
16262	Boilers, steam	John Armstrong	New Orleans, La	Dec. 23.
14033	Boiler, steam, alarms	Thomas Stubblefield	Columbus, Ga	Jan. 1.
16092	Boilers, steam, and kettles, combined	A. Lapham, assignor to himself and S. Wilkes.	Brooklyn, N. Y.	Nov. 18.
15870	Boilers, steam, arrangement of means for regulating the draught in.	Pliny E. Chase	Philadelphia, Penn	Oct. 14.
15579	Boiler, steam cylinder within the, arrangement of.	John S. Shapter	New York	Aug. 19.
14449	Boilers, steam, feed and blow-off, apparatus for	Jacob Frick	Philadelphia, Penn	Mar. 18.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14191	Boilers, steam, feed-water apparatus to	Thomas Firth	Cincinnati, Ohio	Feb. 5.
16206	Boilers, steam, feed-water pumps for	Erastus W. Ellsworth	East Windsor Hill, Conn	Dec. 9.
14959	Boilers, steam, floats for	F. A. Hoyt	Boston, Mass	May 27.
16173	Boilers, steam, floats for	William S. Blake	Boston, Mass	Dec. 9.
15424	Boiler, steam, furnaces	E. T. Ingalls	Haverhill, Mass	July 29.
15825	Boiler, steam, grates	A. M. Searles	Cincinnati, Ohio	Sept. 30.
14835	Boilers, steam, heating feed-water apparatus for.	Thomas Sloan	St. Louis, Mo	May 6.
15494	Boilers, steam, heating feed-water apparatus for.	John R. Sees	New York, N. Y	Aug. 5.
15324	Boilers, steam, means for controlling feed-water apparatus of.	Benjamin F. Bee	Wareham, Mass	July 15.
15617	Boilers, steam, water-gauges for	Lucius Paige	Cavendish, Vt	Aug. 26.
16054	Boilers, steam, water-gauges for	John C. Harris	Savannah, Ga	Nov. 11.
16182	Boilers, steam, water-gauges for	F. A. Hoyt	Boston, Mass	Dec. 9.
16130	Condensers and heaters, tubular construction of.	Uel West and Abner Mills	New York, N. Y	Nov. 25.
14244	Condensers, steam	James T. King	New York, N. Y	Feb. 12.
14954	Engine governor for side-wheel ocean steamers	William B. Godfrey	Auburn, Iowa	May 27.
15056	Engine, hydro-steam	William Baxter	Newark, N. J	June 10.
14967	Engines, &c., steam, instantaneous governors for.	Wm. W. H. Mead	Chestertown, N. Y	May 27.
14239	Engines, condensing steam, which are used for pumping.	Birdsill Holly	Seneca Falls, N. Y	Feb. 12.
16202	Engines, hydraulic and steam, cylinder and piston of.	John Underwood	Lowell, Mass	Dec. 9.
15122	Engines, marine and other, differential governor for.	Charles N. Clow	Port Byron, N. Y	June 17.
14124	Engines, oscillating	A. Wightman and W. Warden	Alleghany, Pa	Jan. 15.

		signors to J. P. Haign and A. Hartupee and J. Morrow.		
16132	Engines, steam, adjustable cut-offs for	William Wright	Hartford, Conn	Nov. 25.
15604	Engines, steam, condensers for	John T. Denniston	Lyons, N. Y	Aug. 26.
15663	Engines, steam, condensers for	David Matthew	Philadelphia, Pa	Sept 2.
14486	Engines, steam, cut-off gear for	Orville Leonard, assignor to O. Leonard and George H. Reynolds.	Somerville, Mass	Mar. 18.
14699	Engines, steam, cut-offs for	John S. Shapter	New York, N. Y	April 15.
15095	Engines, steam, governor for	Marshal Wheeler	Honesdale, Pa	June 10.
14545	Engines, steam, means for regulating variable cut-offs for.	Henry S. Hopkins, assignor to Hopkins, Hendrick, & Peckham.	Providence, R. I	Mar. 25.
	Engines, steam, method of varying the stroke of feeding-pump for. (See Class XI, letter P.)			
14204	Engines, steam, oscillating	Juan Pattison	Brooklyn, N. Y	Feb. 5.
14778	Engines, steam, rotary	John B. Root	Brooklyn, N. Y	April 29.
15281	Engines, steam, rotary	J. M. Colman and T. Turton	Milwaukie, Wis	July 8.
15667	Engines, steam, rotary	John Robingson	New Brighton, Pa	Sept. 2.
15641	Engines, steam, rotary	P. D. M. Carmichael	Leroy, N. Y	Sept. 2.
14923	Engines, steam, surface condensers for	James M. Miller	New York, N. Y	May 20.
14932	Engines, steam, surface condensers for	Nathan Thompson, jr	Williamsburg, N. Y	May 20.
15745	Engines, steam, variable cut-offs for	Charles H. Reynolds	Lewiston, Me	Sept. 16.
15371	Engines, steam, vibratory	William Darker, jr	West Philadelphia, Pa	July 22.
14082	Engines, variable dial for dividing	William H. Brown	Worcester, Mass	Jan. 15.
14891	Fire and escape ladder	John Van Amringe	Cincinnati, Ohio	May 13.
15539	Hammers, steam, valve gear for	Charles W. and John P Willard	Dorchester, Mass	Aug. 12.
16071	Locomotive engines, heating feed-water of, arrangement of means for.	John R. Sees	New York, N. Y	Nov. 11.
15820	Locomotive for roads, &c	John Robingson	New Brighton, Pa	Sept. 30.
16220	Locomotive, method of charging the receiver of a, with compressed air from fixed stations.	Samuel Carson, assignor to American Railway Manufacturing Company.	New York, N. Y.; subject of Great Britain.	Dec. 9.
14187	Locomotives, heating feed-water apparatus for.	Peter S. Ebbert	Chicago, Ill	Feb. 5.
15225	Locomotive smoke-stacks, base piece of	Peter S. Ebbert	Chicago, Ill.	July 1.
14081	Propellers, stern, means for supporting the propeller shaft and receiving the rudder of.	John Beattie	Liverpool, England	Jan. 15; England, Sept. 5, 1850.
15246	Steam gauges	W. K. Miller	Canton, Ohio	July 1.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15058	Steam pressure gauges	Samuel W. Brown	Lowell, Mass	June 10.
15259	Steam pressure indicators and regulators	William M. Storm	New York, N. Y.	July 1.
15829	Steam pressure regulators	William S. Gale	New York, N. Y.	July 1.
14500	Steam radiator cocks	Stephen J. Gold	New Haven, Conn	Mar. 25.
14944	Steam stamps, operating	William Ball	Chicopee, Mass	May 27.
15815	Steam-wagon	John Percy	Albany, N. Y.	Sept. 30.
	Steam, water, &c., cock for. (See Class XI, Letter C.)			
14562	Steam-whistles, automatic, on locomotives	James Harrison, jr	Milwaukie, Wis	April 1.
14709	Valve, balanced slide, for steam-engines	Alexander Buchanan	New York, N. Y.	April 22.
15208	Valve-checks, cut-off, for steam-engines	William Wright	Hartford, Conn	June 24.
14978	Valve-gear for steam-engines	Herman Winter	New York, N. Y.	May 27.
16171	Valve-gear for steam-engines	Alfred S. Beebe	Fall River, Mass	Dec. 9.
14580	Valve-gear of oscillating engines	William Stephens	Pittston, Pa	April 1.
14620	Valve governor, for steam-engines	H. H. Smith	Cincinnati, Ohio	April 8.
14516	Valve-motion for oscillating-engines	Horatio O Perry	Buffalo, N. Y.	Mar. 25.
15576	Valve-motions for steam-engines	Edward S. Renwick	New York, N. Y.	Aug. 19.
16227	Valve-motions for steam-engines	John Butler	Dunmore, Pa	Dec. 16.
14225	Valves and exhaust passages of steam-engines	Charles W. Copeland	New York, N. Y.	Feb. 12.
15207	Valves, cut-off, for steam-engines, operating	William Wright	Hartford, Conn	June 24.
14649	Valves, cut-off, of steam-engines, arrangement of means for operating.	Henry E. Canfield	New York, N. Y.	April 15.
15406	Valves, steam-slide, relieving from pressure	Henry R. Worthington	New York, N. Y.	July 22.
14749	Valves of direct-acting engines by the exhaust steam, completing the throw of the.	Henry R. Worthington	Brooklyn, N. Y.	April 22.
14338	Valves of steam-engines, operating the, arrangement of means for.	Jacob Scheitlin, assignor to J. Scheitlin and O. A. Dailey.	Washington, D. C.	Feb. 26.
14419	Valves of steam-engines, slide, means for reducing the friction of.	Robert L. Stevens	Hoboken, N. J.	Mar. 11.
	Valves of steam-hydrants, arrangement of means for operating the (See Class XI, Letter H.)			

15534	Valves, regulating, for steam-engines	Henry F. Shaw, assignor to H. F. and G. F. Shaw.	Woburn, Mass	Sept. 30.
15120	Valves, safety	R. Cornelius	Philadelphia, Pa	June 17.
14963	Valves, safety, for steam-engines	A. B. Latta	Cincinnati, Ohio	May 27.
14611	Valves, slide, and means for operating them, arrangement of.	Wm. M. Henderson	Baltimore, Md	April 9
14991	Valves, slide, for steam-engines, operating	John F. Allen, assignor to N. L. Cole	New York, N. Y	May 27.
14010	Valves, slide, method of operating and lubricating.	James Cochrane	New York, N. Y	Jan. 1.
14991	Valves, slide, relieving, from the pressure of steam.	William Burdon	Brooklyn, N. Y	June 3.
14125	Valves, steam, as cut-offs, means of regulating and working.	Chas. H. Brown and Chas. Burleigh, assignors to "The Putnam Machine Co."	Fitchburg, Mass	Jan. 16.
14145	Valves, steam, in blower-engines, means for operating the.	James P. Ross	Lewisburg, Pa	Jan. 22.
14108	Valves, stop, steam	James McNab and Adam Carr	New York, N. Y	Jan. 16.
14906	Valves, supplemental, arrangement of, for high pressure steam-engines.	Richard Colburn and L. W. Hanson	Norwich, Conn	May 20.
14150	Valve, throttle, of steam-engines, means for operating the.	Albert Bisbee	Chelsea, Mass	Jan. 29.

Class VII.—Navigation and Maritime Implements, *comprising all vessels for conveyance on water, their construction, rigging, and propulsion, diving-dresses, life-preservers, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1866.
14903	Boat-framer	James Beetle	New Bedford, Mass	May 20.
14565	Boat, life	George W. La Baw	Jersey City, N. J	April 1.
15794	Boat oars	Rufus Rode, assignor to	Manchester Township	Sept. 23.
14489		John Derrig	York, Pa.	
	Boats, detaching, from their tackle	Chas. H. Key, admin'r of S. F. Blunt, dec'd	Baltimore, Md	Mar. 25.
15187	Boats, ice, arrangement of means attached to.	Daniel Large	Philadelphia, Pa	June 24.
15472	Boats, ice-breaking	Henry and William Brown	Philadelphia, Pa	Aug. 5.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14843	Boats, life, propellers for	George W. La Baw, assignor to G. W. La Baw, Jos. Colton, and Theo. Howell.	Jersey City, N. J.	May 6.
15487	Boats, line-ferry, or flying-bridges, means for guiding.	William A. Jordan	Thibodeaux, La.	Aug. 5.
15473	Boats, means for attaching and detaching, to and from their tackle.	John M. Brooke	U. S. N.	Aug. 5.
15954	Boats, steam, capstans for	John Schaffer	Manchester, Pa.	Oct. 21.
15845	Buoys	William M. Ellis	Washington, D. C.	Oct. 7.
15200	Buoy, tidal alarm	John Taggart	Roxbury, Mass.	June 24.
14758	Chain-cable hooks	Enoch Applegate	Wilmington, Del.	April 29.
15323	Fog-bell, electro-magnetic	Arthur Barbarin and B. F. Simms	New Orleans, La.	July 15; England, August 17, 1855.
15605	Fog-bell, self-adjusting	Henry L. De Zeng	Geneva, N. Y.	Aug. 26.
15586	Grapple for raising sunken bodies	Greenleaf A. Wilbur	Skowhegan, Me.	Aug. 19.
14497	Paddle-wheels	Calvin Fletcher	Cincinnati, Ohio	Mar. 25.
15564	Paddle-wheels	Abraham Houseworth	New York, N. Y.	Aug. 19.
15967	Paddle-wheels, buckets of, arrangement of	Matthew A. Crooker	New York, N. Y.	Oct. 28.
14920	Paddle-wheels, feathering	Harvey Lull	Hoboken, N. J.	May 20.
15149	Paddle-wheels, feathering	Joseph G. Shands	St. Louis, Mo.	June 17.
16091	Propeller-shafts	A. Jouan	San Francisco, Cal.	Nov. 18.
14598	Propeller-shafts in keels, inclosing	Aaron Arnold	Troy, N. Y.	April 8.
14973	Propellers, hand	John Gerard Ross	New York, N. Y.	May 27.
14786	Propelling boats	S. W. Wood	Washington, D. C.	April 29.
16169	Sail-hanks	H. M. Bonney	New Bedford, Mass.	Dec. 9.
14094	Sails, reefing	H. D. P. Cunningham, R. N.	Bray, Hants, England	Jan. 15; England, November 30, 1850.
15754	Sails, top, reefing	Isaac Boss	Brooklyn, N. Y.	Sept. 23.
14723	Sail, top, yards, suspending extra	George Hubbard	Stonington, Conn.	April 22.
15837	Ships and boats' tackle, ringbolt for	H. Bigelow and M. Camp	New Haven Conn.	Oct. 7.

	water indicator for.	Reuben Shaler	Madison, Conn	Aug. 26.
14113	Ships and other vessels, cargo-ports or	Charles Perley	New York, N. Y.	Jan. 15.
14048	Ships and other vessels, constructing the bottoms of.	Samuel W. Brown	Lowell, Mass.	Jan. 8.
14365	Ships and other vessels, means for increasing the buoyancy of	Alex. Le Mat	New Orleans, La.	Mar. 4.
15690	Ships and other vessels, safes for	William Montgomery Storm	New York, N. Y.	June 10.
15886	Ships' blocks, anti-friction bushing for	James Kelly	Sag Harbor, N. J.	Oct. 14.
15617	Ships' blocks, sheave-pin of, means for lubricating the.	John M. Riley	Newark, N. J.	Sept. 30.
	Ships' cabins, chairs for. (See Class XVII, letter C.)			
14377	Ships' capstans	D. & G. Talcott	Oswego, N. Y.	Mar. 4.
14983	Ships' capstans	Samuel Gaty	St. Louis, Mo.	May 27.
14986	Ships' capstans	Daniel and George Talcott	Oswego, N. Y.	May 27.
15933	Ships' capstans	Charles Perley	New York, N. Y.	Oct. 21.
15123	Ships' capstans and windlasses	James Emerson	Worcester, Mass.	June 17.
	Ships' compasses. (See Class VIII, letter C.)			
	Ships' compasses, self-registering. (See Class VIII, letter C.			
16059	Ships, &c, method of ventilating	Rudolph Knecht	New York, N. Y.	Nov. 11.
	Ships' hooks, machines for bending. (See Class II, letter H.			
15395	Ships' pendulum pumps for, arrangement of means in.	J. Stever	Bristol, Conn.	July 22.
	Ships, planking, clamp for. (See Class XIV, letter C.)			
15704	Ships' rudders, hanging	Christopher N. Nixon	Ramsgate, England	Sept. 9; England, May 12, 1854.
15732	Ships' sails, reefing, upon extra yards	Joseph S. Foster	Salem, Mass.	Sept. 16.
16045	Ships, steering apparatus for	Thomas Carr	Liverpool, England	Nov. 11.
16165	Ships, steering apparatus for	David W. Smith	Boston, Mass.	Dec. 2.
16238	Ships' windlass	Peter H. Jackson	New York, N. Y.	Dec. 16.
16000	Ships' windlass, the pawl cases of a, machinery for operating.	Christopher Amaseen	New Castle, N. H.	Nov. 4.
15085	Signals, fog, mode of sounding whistles for	Rufus Porter	Washington, D. C.	June 10.
15510	Steering apparatus	John W. Drummond	Norwalk, Conn.	Aug. 12
14104	Steering wheel stopper	Wm. R. Lavender and Atkins Smith	Provincetown, Mass.	Jan. 15.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15898	Sub-marine exploring armors	L. D. Phillips	Chicago, Ill	Oct. 14.
15125	Tackle-blocks, strapping	J. B. Fayette and D. Wheeler	Oswego, N. Y	June 17.
16084	Vessels, attaching centre-boards to	George S. Burrows	Mystic river, Conn	Nov. 18.
15420	Vessels, fore-and-aft, rig of	George W. Gerau	Brooklyn, N. Y	July 29.
16090	Vessels, lee-boards for	A. Jouan	San Francisco, Cal	Nov. 18.
15298	Vessels, life and property saving, arrangement of means for balancing and propelling.	James Minifie	Baltimore, Md	July 8.
14487	Vessels, propelling	Lambert Alexandre	New York, N. Y	Mar. 25.
14226	Vessels, signals for	W. P. Craig and W. R. Rightor	Newport, Ky	Feb. 12.
15319	Vessels, sounding guards for	John Guest, U. S. N	Washington, D. C	July 8.
15850	Vessels, steam, arrangement of elastic-plate paddles for,	Auguste Jouan	San Francisco, Cal	Oct. 7.
14035	Vessels, velocimeters for	Ira F. Thompson	New York, N. Y	Jan. 1
14328	Vessels, velocimeters for	Ira F. Thompson	Westerly, R. I	Feb. 26.

CLASS VIII.—MATHEMATICAL, PHILOSOPHICAL, AND OPTICAL INSTRUMENTS, *including clocks, chronometers, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15565	Adding numbers, machines for	Isaac G. Hubbs	New York, N. Y	Aug. 19.
15359	Centrolineads	W. Jose Von Kammerhueber	Washington, D. C	July 15.
14645	Clocks, calendar	Edwin Allen	Glastonbury, Conn	April 15.
15637	Clocks, calendar	Edwin Allen	Glastonbury, Conn	Sept. 2.
14251	Compasses, ships'	John Prime	Washington, D. C	Feb 12.
15017	Compasses, ships', self-registering	R. H. Peverly	Chelsea, Mass	June 3.
15117	Counting coin, machines for	M. F. Bouzano	New Orleans, La	June 17

16323	Counting machines			
	Dial, variable, for dividing engines. (See Class VI, letter E)	James A. Bazin, assignor to A. B. Ely	Canton, Mass	Dec. 23.
15608	Dynamometers	George and John W. Gibbs	Canton, Ohio	Aug. 26.
14032	Electrical, automatic, circuit breakers	Charles Robinson and Charles T. Chester	New York, N. Y	Jan. 1.
	Electro-magnetic fog bell. (See Class VII, letter F)			
	Electro-magnetic grain scale. (See Class XI, letter S)			
15596	Electro-magnetic machines	Edward C. Shepard	New York, N. Y	Aug. 19.
16175	Elliptographs	James W. Campbell	Brooklyn, N. Y	Dec. 9.
14682	Engines, electro-magnetic	Maurice Vergnes	New York, N. Y	April 15.
15491	Lightning-rods	David Munson	Indianapolis, Ind	Aug. 5.
14598	Magneto-electric machines	Calvin Carpenter, jr	Providence, R. I	April 8.
14857	Measure, self-counting	Elisha Dexter	Holmes's Hole, Mass	May 13.
15602	Measuring distances from a single station, instrument for.	Enoch A. Crandall	Friendship, N. Y	Aug. 26.
15040	Measuring distances, parallactic instruments for.	Horace L. Hervey	Quincy, Ill	June 3.
15509	Odometers	Smith Beers	Naugatuck, Conn	Aug. 12.
16003	Odometers	Albert Carter	Forestville, Conn	Nov. 4.
15140	Odometers and counting measures	Joseph L. Martin	Baltimore, Md	June 17.
15356	Pendulum for time-keepers, conical, mode of regulating.	John C. Briggs	Concord, N. Y	July 15.
16148	Pentagraphs	Henry Neumeyer	Macungie, Pa	Dec. 2.
15183	Plotting instruments	Charles R. Iliff	Falmouth, Ky	June 24.
15162	Quadrants, reflecting	Thomas Hedgcock	Surrey county, England	June 17; England March 31, 1855.
14396	Rulers, parallel	R. Eichemeyer	Yonkers, N. Y	Mar. 11.
16002	Sextant, equatorial, instrument called an	William A. Burt	Mount Vernon, Mich	Nov. 4.
14664	Telegraph, electric	Charles Kirchhof	New York, N. Y	April 15.
14157	Telegraphic-repeaters	Moses G. Farmer	Salem, Mass	Jan. 29.
14917	Telegraphs	David E. Hughes	Louisville, Ky	May 20.
15373	Telegraphs, electric, self-acting	Moses G. Farmer	Salem, Mass	July 22.
14731	Telegraphs, printing, electro-magnetic	A. J. Partridge	Southbridge, Mass	April 22.
14759	Telegraphs, printing, electro-magnetic	Henry A. Baker	Union, N. Y	April 29.
14711	Telegraphs, receiving magnets for	Andrew Coleman	Perth Amboy, N. J	April 22.
	Velocimeters for vessels. (See Class VII, word *Vessels*.)			

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
	Velocimeters for vessels. (See Class VII, word *Vessels*.			
15251	Watches, independent seconds, movement for.	George P Reed	Waltham, Mass	July 1.

CLASS IX.—CIVIL ENGINEERING AND ARCHITECTURE, *comprising works on rail and common roads, bridges, canals, wharves, docks, rivers, weirs, dams, and other internal improvements, buildings, roofs, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15257	Blasting-powder	William Silver, jr	Wapwallopen, Pa.	July 1.
16053	Blinds, slat-spring holderf or	William L. Gallaudet	New York, N. Y.	Nov. 11.
15587	Boring artesian wells, apparatus for.	Clarendon Williams	Franklin, Mo	Aug. 19.
14314	Bridge, arched trussed	Horace L. Hervey	Quincy, Ill	Feb. 26.
15873	Bridge, canal	E. G. Anderson	Chillicothe, Ohio	Oct. 14.
14928	Bridge, draw, floating	Napoleon B. Proctor	Burlington, Vt	May 20.
14584	Bridges	George W. O Huygens, assignor to himself, Charles Bender, and D. F. Tiedeman.	St. Louis, Mo	April 1.
15823	Bridges	I. Rogers	Cincinnati, Ohio	Sept. 30
14313	Bridges, girders for	P. C. Guiou	Cincinnati, Ohio	Feb. 26.
15048	Bridges, lattice	Lucius E. Truesdell	Warren, Mass	June 3.
14206	Buildings, cast iron, mode of constructing	Harriet V. Terry, administratrix of Wm. D. Terry, deceased.	Boston, Mass	Feb. 5.
15002	Buildings, device in walls of, for preventing damage to goods by water in case of fire.	Thomas Estlack	Philadelphia, Pa	June 3

14301	Cellars, coal in, machine for depositing	William Bell	Boston, Mass	Feb. 26.
14323	Cellars, walls and floors of, mode of constructing.	A. R. Moen	New York, N. Y	Feb. 26.
14273	Cisterns, construction of	William D. Bartlett	Amesbury, Mass	Feb. 19.
14903	Closets, water	E. Bookhout and C. H. Hewlett	New York, N Y	May 20.
16133	Coal, hoisting, apparatus for	J. Claude White and Robert Hay	Tuckerville, Pa	Nov. 25.
14107	Coal-hole covers, safety	F. H. Moore	Boston, Mass	Jan. 15.
14359	Coal-holes, guard for	George C. Jenks	Boston, Mass	Mar. 4.
15300	Coal, raising and dumping, apparatus for	Ephraim Morris	Bergen, N. J	July 8.
15434	Coal scuttles	James Myers, jr	New York, N. Y	July 29.
15317	Dams, mode of constructing	Waldo P. Craig, assignor to W. P. Craig and W. R Rightor.	Newport, Ky	July 8.
14117	Ditching machines	T. J. Stratton	Waterloo, N. Y	Jan. 15.
14047	Doors, double, mode of hanging	Charles E Brown	New York, N. Y	Jan. 8.
15465	Doors, weather strip for	James H. Banta	Piermont, N. Y	Aug. 5.
16077	Doors, weather strips for	Reuben Wight	Westfield, N. Y	Nov. 11.
16046	Draining machines	John Cole and A. Lettle O. Wall	De Witt, Ill	Nov. 11.
14025	Eave troughs, machine for making	O. E. Mallory	Castile, N. Y	Jan. 1.
14762	Excavating and moving earth, machine for	Asa W. Cady	Sullivan, N. Y	April 29.
14068	Excavating machines	J J. Savage	New York, N. Y	Jan. 8.
14933	Excavating scoops	John Taggart	Roxbury, Mass	May 20.
15102	Excavator, rotary	Daniel Judd	Hinsdale, N. Y	June 10.
14966	Excavators	Charles A. Mann, jr	Pike, N. Y	May 27.
15813	Excavators	S. G. L. Morrow	Linn, Mo	Sept. 30.
15875	Excavators	James Bourbin	San Francisco, Cal	Oct. 14.
16081	Excavators	John F. Willey, assignor to himself, Benjamin F. Merrill, and Thomas Phillips.	Fredonia, N. Y	Nov. 11.
15561	Fence, farm, for rolling ground	Ephraim D. Foss	Mainville, Ohio	Aug. 19.
14518	Fence, field	J. B. Reyman	Salem, Ind	Mar. 25.
14581	Fence, field	S. G. Tufts	Mainville, Ohio	April 1.
15188	Fence, field	Benjamin F. Lyon	Pleasantville, Pa	June 24.
16236	Fence, field, portable	James G. Hunt	Reading, Ohio	Dec. 16.
16265	Fence, field, portable	W. B. Burnett	Phelps, N, Y	Dec. 23.
16181	Fence for stock-pen, portable prairie	Thomas Hoge	Waynesburg, Pa	Dec. 9.
15812	Fence, portable	G. R. McIlroy	Oakdale, Ind	Sept. 30.
14152	Fences, field	Thomas J. Carleton and Stephen Post	York, Ohio	Jan. 29.
14519	Fences, field, portable	James Rowe	Tampa Bay, Florida	Mar. 25.
16172	Fences, portable, yielding-joint for	Robert J. Brown	Perry, Pa	Dec. 9.
16187	Gate, approach-opening	William G. Philips	Newport, Del	Dec. 9.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14851	Gate, farm	Charles N. Cole	Pleasant Valley, N. Y	May 13.
15213	Gate, farm	George Taylor, assignor to H. Ogborn and George W. Stigleman.	Richmond, Ind	June 24.
16243	Gate, railroad, for cattle guard	Joseph T. McIntyre	New Castle, Del	Dec. 16.
14926	Gates, doors, &c., method of hanging	Samuel Oberholzer	Terre Hill, Pa	May 6.
14689	Gates, farm, method of hanging and elevating or depressing.	J. Francis Downing	Erie, Pa	April 15.
14131	Gates, farm, method of opening and closing	J. A. Ayres	Hartford, Conn	Jan. 22.
15881	Gates, farm, method of opening and closing	Dennis E. Fenn	Tallmadge, Ohio	Oct. 14.
15631	Gates, farm, method of operating	Caleb Winegar	Union Springs, N. Y	Aug. 26.
15518	Gates, farm, method of raising, lowering, and operating.	C. Hunter and N. Isham	Norwalk, Ohio	Aug. 12.
14351	Gates, farm, self-acting	Elon Dunbar	Philadelphia, Pa	Mar. 4.
15911	Gates, fastening for	Smith Young	Milton, N. Y	Oct. 14.
14387	Gates, lock, valves for	William Butler	Little Falls, N. Y	Mar. 11.
14456	Grating, illuminating	Joshua K. Ingalls	Williamsburg, N. Y	Mar. 18.
14355	Houses, portable	Daniel Fitzgerald	New York, N. Y	Mar. 4.
14952	Houses, portable, mode of constructing	Daniel Fitzgerald	New York, N. Y	May 27.
15201	Houses, ware, safety hatches for	Wm. H. Thompson and Eustis P. Morgan.	Biddeford, Me	June 24.
14854	Lathing surface, continuous sheet-metal	John B. Cornell	New York, N. Y	May 13.
14092	Lock-gate valves	De Witt C. Cumings	Fulton, N. Y	Jan. 15.
	Mouldings, curved, method of cutting. (See Class XIV, letter M.)			
15776	Pavement, cast iron	George M. Ramsay	New York, N. Y	Sept. 23.
14384	Pavement, cast-iron, mode of constructing	Pelatiah M. Hutton	Troy, N. Y	Mar. 4.
15479	Pavement, metal	Solomon B. Ellithorp	New York, N. Y	Aug. 5.
14736	Pavements, cast-iron	Asa P. Robinson	New York, N. Y	April 22.
14054	Paving, street, machines	Thomas Davidson, jr	Kensington, Pa	Jan. 8.
14716	Peat, digging, machine for	Abraham Fitts	Worcester, Mass	April 22.
14502	Pile driver	J. W. Hoard	Providence, R. I	Mar. 25.
15099	Platform supporters	Charles E. Flagg	Shelburne, Mass	June 10.

	Railroad bars, repairing. (See Class II, letter B.)				
	Railroad platform scales. (See Class XII, letter S)				
14870	Railroads, compound rail for	William J. Holman	Indianapolis, Ind	May	13.
14886	Railroads, snow plough for	Samuel Richards	Philadelphia, Pa	May	13.
	Railway bars, rolling. (See Class II, under "Rolling."				
	Roofing, cements. (See Class IV, Letter C)				
14267	Roofing, mastic, construction of	C. C. Hoff, assignor to E. P. Russell	Albany, N. Y	Feb.	12.
15068	Roofs, sheet-metal, coverings for, mode of securing.	William H. Trissler and John Stewart	Fairview, Pa	Oct.	28.
15476	Sash supporter	Charles H. Dana	West Lebanon, N. H	Aug.	5.
15557	Sash supporter	Charles S. Bruff	Baltimore, Md	Aug.	19.
15390	Scaffold for shingling roofs	J. W. Rodefer	Abingdon, Va	July	22.
14764	Scaffolding	John M. Dearborn	Boston, Mass	April	29.
14156	Scaffolds	Charles Foster	Philadelphia, Pa	Jan.	29.
14809	Scraper, road	John Gustine and J. M. Rankin	Lewistown, Ill	May	6.
14817	Scrapers, dumping	Mathew S. Kahle	Lexington, Va	May	6.
14050	Scuttle, coal, covers	Ira Chase, jr	Boston, Mass	Jan.	8.
14185	Shingles, cast-iron, lugs for	John Cook	Westmoreland, N. Y	Feb.	5.
14798	Shutters, double panel	Charles S. Bruff	Baltimore, Md	May	6.
14021	Smoke houses	Moses W. S. Kendall	Cincinnati, Ohio	Jan.	1.
15647	Street sprinkler	John F. Driggs	New York, N. Y	Sept.	2.
14341	Streets, sweeping, machine for	Timothy Alden	New York, N. Y	Mar.	4.
14512	Streets, sweeping, machine for	Joseph Miller	Boston, Mass	Mar.	25.
15253	Streets, sweeping, machine for	D. H. Rickards	Georgetown, Mass	July	1.
15710	Streets, sweeping, machine for	Robert A. Smith	Brooklyn, N Y	Sept.	9.
14651	Stump extractor	J. B. Creighton	Tiffin, Ohio	April	15.
14330	Stumps, extracting, machine for	Solomon W. Ruggles	Fitchburg, Mass	May	6.
14937	Stumps, extracting, mode of	Geo. W. Zeigler and Manasseh Grover	Clyde, Ohio	May	20.
15537	Stumps, extracting, mode of	W. O. Thompson and L. Harrington	Orange, Mass	Aug.	12.
15566	Sweeping gutters, machine for	William H. King, assignor to Wm. H. King and Isaac Hyneman.	Philadelphia, Pa	Aug.	19.
14264	Switch, railroad	James Whitcomb	Detroit, Mich	Feb.	12.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Tile, drain, machine. (See Class XV, Letter F.)			1856.
14180	Trap, bell, stench	Charles H. Bush	Fall River, Mass	Feb. 5.
14755	Tunnelling and quarrying machine or	Ira Merrill, assignor to Ira Merrill and Arthur Maxwell.	Shelburne Falls, Mass	April 22.
14483	Tunnelling rocks, machine for	Charles Wilson	Springfield, Mass	Mar. 18.
14281	Vault covers	John B Cornell	New York, N. Y	Feb. 19.
14680	Vault covers	William D. Titus	Brooklyn, N. Y	April 15.
16161	Vault covers	Thomas Floyd, assignor to Thos. Floyd and Geo. H. Merklin.	Chambersburg, Pa	Dec. 2.
15474	Water closets	William S. Carr	New York, N. Y	Aug. 5.
15758	Window blinds, the slats of, mode of adjusting	B. E. English	Hartford, Conn	Sept. 23.
15000	Window frames	John Casey	New York, N Y	June 3.
15578	Window sash	Francis E. Sessions	Worcester, Mass	Aug. 19.
14744	Windows, &c., weather-strip and lock for	Alfred Speer	Passaic, N. J	April 22.
15447	Window sash, hanging, mode of	Cromwell P. Weaver	Philadelphia, Pa	July 29.
15528	Window sashes, spring pulleys for	John Shopland	Honesdale, Pa	Aug. 12.

CLASS X.—LAND CONVEYANCE, *comprising carriages, cars, and other vehicles used on roads, and parts thereof.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14345	Axle-arms, skein for	John M. Burke	Danville, N. Y	Mar. 4.
16153	Axle-box	William H. Saunders	Hastings, N. Y	Dec. 2.
14579	Axle-boxes for carriages	Ezra M. Stratton	New York, N. Y	April 1
	[illegible] lubricating	P. E. Prout	[illegible]	18; France, April

14060	Axles, boxes for	Julius Bevin, assignor to himself and Samuel N. Stillman.	Manlius Forks, N. Y.	April 8.
14953	Axles, carriage, securing nuts to	Kingston Goddard	Philadelphia, Penn	May 27.
14747	Axles, divided, for railroad cars	Richard Vose	New Nork, N. Y.	April 22.
14096	Axles, mode of attaching thills to	Allen Green	Providence, R. I.	Jan. 15.
15169	Axles, mode of securing shafts to	William Cox	Doylestown, Penn.	June 24.
14468	Axles, railroad car, boxes of	David R. Perkinpine	Philadelphia, Penn	Mar. 18.
14560	Axles, railroad, journal box for	William B. Gage	Louisville, Ky	April 1.
14291	Axles, shafts to, mode of applying	Charles S. Pitman	Swampscot, Mass	Feb. 19.
14417	Axles, thills to, mode of securing	Soverel Matthias	Orange, N. Y.	Mar. 11.
16294	Axletrees, mode of connecting shafts with	Alfred E. Smith	Bronxville, N. Y.	Dec. 23
15217	Brake for wagons	D. Franklin Breed	Fulton, N. Y.	July 1.
14681	Brake, railroad	Benjamin T. Trimmer	Parma, N. Y.	April 15.
14385	Brake, railroad car	V. Barnes	Washington, D. C.	Mar. 11.
14640	Brake, railroad car	R. M. Evans, assignor to R. M. Evans and Charles S. Gale.	Laconia, N. H.	April 8.
16011	Brake, railroad car	Dennis Harrigan	Winchester, Mass.	Nov. 4.
16004	Brake, railroad car	William G. Creamer	New York, N. Y.	Nov. 4.
16042	Brakes, bumper, for railroad cars	Francis Armstrong	New Orleans, La.	Nov. 11.
15038	Brakes, railroad car	Mahlon S. Frost	Detroit, Mich.	June 3.
14515	Brakes, railroad car, levers of	Lucius Paige	Cavendish, Vt.	Mar. 25
14766	Buggies, joint-bodied	Edwin J. Green and Moses H. Wheeler	Cedarville, N. Y.	April 29.
15909	Car, railroad, coupling	John C. Ward	Charleston, S. C.	Oct. 14.
15997	Car, railroad, coupling	D. Lynahon and C. J. Wing, assignor to D. Lynahon.	Buffalo, N. Y.	Oct. 28.
14083	Car, railroad, extension	Joseph S. Brown	Lowell, Mass.	Jan. 15.
14841	Car, railroad, seats	George Willard, assignor to himself and N. W. C. Jameson.	Boston, Mass.	May 6.
16160	Car, railroad, seats and couches	Theodore T. Woodruff	Alton, Ill.	Dec. 2.
16159	Car, railroad, seats and couches	Theodore T. Woodruff	Alton, Ill.	Dec. 2
15233	Carriage, &c., axletrees, method of turning	John Hennon	Brighton, Penn.	July 1.
14443	Carriage-coupling	Thomas Chope	Detroit, Mich.	Mar. 18.
14607	Carriage-coupling	William Greenleaf	Greenfield, Ohio	April 8.
15345	Carriage, pleasure, three-wheeled	Cyrus W. Saladee	Columbus, Ohio	July 15.
15097	Carriages	Reuben W. Benedict	Brant, N. Y.	June 10.
19923	Carriages	Daniel Freeman	Burford, Canada	Oct. 21.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14395	Carriages, apparatus to prevent horses in, from falling.	Robert D. Dwyer	Richmond, Va	Mar. 11.
14231	Carriage-seat, adjustable	David N. Flanders	South Royalton, Vt	Feb. 12.
14931	Carriage shaft-coupling	James D. Sarven	Columbia, Tenn	May 20.
15979	Carriages, perch couplings for	William S. Lord	Pulaski, Tenn	Oct. 28.
14197	Carriage-springs	Richard Montgomery	New York, N. Y	Feb. 5.
15126	Carriage-springs	John U. Fiester	Winchester, Ohio	June 17.
15914	Carriage-springs, brace for	Thomas Dutton, assignor to I. R. Elvans.	Washington, D. C	Oct. 14.
15234	Carriage-springs, mode of adjusting	M. G. Hubbard	Penn Yan, N. Y	July 1.
15189	Carriages, running gear of	Richard Murdoch	Baltimore, Md	June 24.
15297	Carriages, steam, wheel for	A. B. Latta	Cincinnati, Ohio	July 8.
15567	Carriages, thorough braces for	Frederick A. Jewett	Abington, Mass	Aug. 19.
15071	Carriages, three-wheeled, for children	John H. Gould	New York, N. Y	June 10.
16122	Carriages, turning circles for	George Kenny	Milford, N. H	Nov. 25.
14400	Carriage tops	Henry Hayes	Quincy, Ill	Mar. 11
14735	Carriage tops, apparatus for raising and lowering.	Alanson Quigley	Sheldrake, N. Y	April 22.
15725	Carriage tops, mode of adjusting	C. W. Saladee	Columbus, Ohio	Sept. 2.
14066	Cars, dirt, machine for loading	Charles Phillips	Detroit, Mich	Jan. 8.
14364	Car seats, railroad	George T. McLaughlin	Boston, Mass	Mar. 4.
15698	Car springs, metallic	Danforth Johnson	Chicago, Ill	Sept. 9.
15869	Cars, railroad, coiled springs for	Carlos French	Seymour, Conn	Oct. 7.
15699	Cars, railroad, collision apparatus for	John Kulinski	Charleston, S. C	Sept. 9.
15833	Cars, railroad, disconnecting and applying brakes.	Joab Buck, assignor to Joab Buck, H. S. Buck, J. W. Kimball, and D. H. Thompson.	Fitchburg, Mass	Sept. 30.
15581	Cars, railroad, head-rest to be used in	William B. Slaughter	Chicago, Ill	Aug. 19.
14154	Cars, railroad, machine for replacing	H. N. Degraw	Piermont, N. Y	Jan. 29.

[illegible]	Cars, railroad, safety platforms between	James Kline, jr., and Simon V. Kline	Chicago, Ill.	April	15.
14508	Cars, railroad, spring platform for	Charles H. Lewis	Malden, Mass.	Mar.	26.
15839	Cars, railroad, uncoupling bumper, arrangement for.	William O. George	Richmond, Va	Oct.	7
14139	Cars, railroad, ventilating	W. H. Medcalf	Baltimore, Md	Jan.	22.
14945	Car window	James Beedle	New Bedford, Mass	May	27.
16147	Chairs, railroad	James H. Morley	St. Louis, Mo	Dec.	2; antedated June 2, 1856.
15355	Coupling, car.	John B. Witherle	Upton, Mass	July	15.
14311	Coupling for the joints of felloes	S. A. Garrison and D. C. Morey	Chelsea, Mass	Feb.	26.
14985	Coupling for vehicles	H. Miner, H. M. Stevens, and Wm. H. Saunders.	New York, N. Y.	May	27.
16230	Coupling, railroad car.	Charles Flanders	Charlestown, Mass	Dec.	16.
14256	Coupling, safety-spring	Edwin F. Shoenberger	Marietta, Pa	Feb.	12.
15351	Coupling, shaft, detachable	Peter Teal	Philadelphia, Pa	July	15.
14265	Couplings, railroad car	S. W. Wood	Washington, D. C	Feb.	12.
16044	Drag, steam	George Bradley	Paterson, N. J	Nov.	11.
	Felloes, dressing, machine for. (See Class XIV, Letter F.)				
	Felloes, machine for manufacturing. (See Class XIV, Letter F.)				
14802	Felloes, machine for sawing	S. & W. H. Book	Rushville, Ohio	May	6.
	Felloes, planing, machine for. (See Class XIV, Letter P.)				
	Felloes, sawing, machine for. (See Class XIV, Letter S.)				
	Hubs, boring, tool for. (See Class XIV, Letter B.)				
14407	Hubs, carriage	Henry Nicum	Uniontown, Pa	Mar.	11.
14310	Hubs, carriage, box for	Alfred C. Garratt	Roxbury, Mass	Feb.	26.
14294	Hubs for carriages	Joseph Smith	Sunbury, Ohio	Feb.	19.
15770	Hubs of wheels, securing spokes in the	Robert Moore	Westport, Ind	Sept.	23.
14371	Hubs to axles, mode of attaching	Horace B. Simonds	West Hartfort, Vt	Mar.	4.
15818	Hubs to axles, mode of attaching	John M. Riley	Newark, N. J	Sept.	30.
15769	Omnibus	D. O. Macomber	New York, N. Y.	Sept.	23.
14470	Omnibus registers.	James Rodgers	New York, N. Y.	Mar.	18.
14652	Omnibus registers	Levi Cromwell	Baltimore, Md.	April	15.
15059	Propeller, steam land	Geo. W. N. Yost	Pittsburg, Pa.	June	3.
15036	Railroad-chairs, elastic bearings for	D. L. Davis	Dedham, Mass.	June	3.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15480	Railroad-signals, compressed air, mechanism for.	John W. Fowble	Cincinnat Ohio	Aug. 5.
16005	Railroad station indicators	Edwin A. Davis	Crawfordsville, Ind	Nov. 4.
14169	Railroad track, machine for clearing snow from.	Riley Root and Samuel G. Holyoke	Galesburg, Ill	Jan. 29.
16300	Rests, head, portable	Allen B. Wilson	Waterbury, Conn	Dec. 23.
15991	Shaft-tugs	William Wentz	Geneva, N. Y	Oct. 28.
15737	Sleighs, shafts to, mode of attaching	George Henney	Milford, N. H	Sept. 16.
15558	Tire, clamping and upsetting	O. L. Cowles and A. L. Deming	Teconsba Township, Mich	Aug. 19.
15214	Tire on wheels, mode of securing	William A. Ashe	New York, N. Y	July 1.
15272	Tire, upsetting, machine for	Henry Barringer	Barry, Ill	July 8.
15908	Vehicles, arrangement of the thills of	Noah Warlick	La Fayette, Ala	Oct. 14.
14653	Vehicles, attaching thills and poles to	A. J. Gibson	Clinton, Mass	April 15.
14484	Vehicles, harnesses and thills of, safety apparatus to be applied to.	James H. Wilson, jr	Nashville, Tenn	Mar. 18.
15692	Vehicles, mode of attaching horses to	George H. Gray	Clinton, Miss	Sept. 9.
15288	Vehicles, mode of attaching shafts to	Francis J. Flowers	Brooklyn, N. Y	July 8.
15179	Vehicles, mode of detaching horses from	Francis M. English	Hopkinsville, Ky	June 24.
15191	Vehicles, running gear of	Henry Phelps	White Hall, N. C	June 24.
15103	Vehicles, shafts of, mode of attaching horses to.	George B. Kaighn	Philadelphia, Pa	June 10.
14190	Vehicles, three-wheeled	Elisha S. French	Binghampton, N. Y	Feb. 5.
15987	Wagon, dumping	William B. Twiford	Horntown, Va	Oct. 28.
14304	Wagons	Benjamin B. Bundy	Walton, N. Y	Feb. 26.
16060	Wagons	Henry Kruse	New Orleans, La	Nov. 11.
14174	Wagons, buggy	Thomas Winans	Baltimore, Md	Jan. 29.
14831	Wagons, extension	E. D. Rosencrants	New York, N. Y	May 6.
15885	Wagons, side-spar, arrangement of springs for.	M. G. Hubbard	Penn Yan, N. Y	Oct. 14.
14794	Wagon-tongue	J. T. Baughman	Frazeysburg, Ohio	May 6.
15109	Wheels, car, casting	Lucien H. Allen, assignor to L. H. Allen and E. M. Ivens.	Tamaqua, Pa	June 10.

15759	Wheels, carriage, machine for painting	S. B. Fuller	Worthington, Mass	Sept.	23.
14434	Wheels, carriage, method of boxing	Charles Schmidt	Union, Mo	Mar.	11.
15049	Wheels, driving, for steam-drags or propellers	George W. N. Yost	Pittsburg, Pa	June	3.
15554	Wheels for carriages	Thomas Brownfield	George's Township, Pa	Aug.	19.
15339	Wheels, railroad car	A. C Ketchum	New York, N. Y	July	15.
15935	Wheels, railroad car, cast-iron	John M. Sigourney	Watertown, N. Y	Oct.	21.
15092	Wheels, railway car, constructing	William R. Thompson	Cleveland, Ohio	June	10.
15670	Whiffletree for detaching horses from carriages.	N. N. Selby	Fairview, Pa	Sept.	2.
15460	Whiffletrees, (No. 1)	George Kenny, assignor to Geo. Kenny and Geo. N. Davis.	Milford, N. H	July	29.
15461	Whiffletrees, (No. 2)	George Kenny, assignor to Geo. Kenny and Geo. N. Davis.	Milford, N. H	July	29.

CLASS XI.—HYDRAULICS AND PNEUMATICS, *including water-wheels, windmills, and other implements operated on by air or water, or employed in the raising and delivery of fluids.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
	Cisterns, construction of. (See Class IX, letter C.)			
14526	Cock for steam, water, &c	William Thomas, assignor to Abner Van Horn.	New York, N. Y	Mar. 25.
14628	Cocks, basin	Charles Harrison	New York, N. Y	April 8.
15771	Engine, air	Thomas McDonough	Middletown, Conn	Sept. 23.
14922	Engine, hydraulic	Augustin Miller	Grafton, Va	May 20.
14690	Engines, air	John Ericsson	New York, N. Y	April 15.
14089	Engines, fire, method of operating	John P. Philo and George Cowing	Seneca Falls, N. Y	Jan. 15.
14429	Faucet	Moses Woodbury	Boston, Mass	Mar. 11.
15459	Faucet	Joseph Goodridge, assignor to Boston Faucet Company.	Boston, Mass	July 29.
15719	Faucet	Joseph Goodridge, assignor to Boston Faucet Company.	Boston, Mass	Sept. 9.
16043	Faucet, anti-frost	Frederick A. Bartholomew	New York, N. Y	Nov. 11.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
16233	Faucet, filtering	George H. Fox, and Henry J. Siller	Boston, Mass. East Cambridge, Mass.	Dec. 16.
14734	Faucet, measuring	Edwin A. Palmer	Paris, N. Y.	April 22.
15263	Faucets, filter attachment for	James H. Wright	New York, N. Y	July 1.
15430	Faucets, method of inserting, into fluids under pressure.	Patrick Mihan	Boston, Mass.	July 29.
15027	Filter	Chapman Warner	Green Point, N. Y.	June 3.
15646	Filter	David N. B. Coffin, jr.	Newton, Mass.	Sept. 2.
15363	Filtering medium	William Wickersham	Boston, Mass.	July 15.
14692	Fluid-metre, diaphragm	R. L. Hawes	Worcester, Mass.	April 15.
16284	Fluid-meters, device for operating by hand	William Mason	Warren, Mass.	Dec. 23.
14982	Fluids, method of drawing from bottles	J. W. Fox	Durhamville, N. Y.	May 27.
15853	Fluids, measuring, method of, while drawing	Samuel Krauser	Reading, Pa.	Oct. 7.
15177	Fluids, method of cooling and drawing from casks, &c.	F. Espenschade	Williamsport, Pa.	June 24.
15385	Fluids under pressure, method of tapping	James P. S. Otterson	Nashua, N. H.	July 22.
15716	Gases, waste, steam, &c., method of drawing from manufacturing enclosures.	Robert F. Brower, assignor to S. A. and J. L. Brower.	Bloomfield, N. J.	Sept. 9.
15256	Gates, balance, for flumes in water-power	Daniel Robinson	Knoxville, Pa.	July 1.
14602	Gates, flood	George W. Flanders	Lynn, Mass.	April 8.
15846	Hose coupling	L. M. Ferry, assignor to James T. Ames.	Chicopee, Mass.	Oct. 7.
14090	Hydrant	C. J. Cowperthwaite	Philadelphia, Pa.	Jan. 15.
14557	Hydrant	Henry English	Baltimore, Md.	April 1.
14805	Hydrant	C. J Cowperthwaite	Philadelphia, Pa.	May 6.
14962	Hydrants, steam, arrangement of means for operating the valves of.	Charles K. Landis	Philadelphia, Pa.	May 27.
14592	Hydrants, waste, attachment for	Edward J. Baker	Baltimore, Md.	April 8.
		John Culver	Baltimore, Md.	April 22.

15712	*Hydraulic puppet-valves, mode of suspending*	George Trott, R. H. Coles, and Wm. A. Clark.	St. Louis, Mo	Sept.	9.
16049	Metre, diaphragm, fluid	J. H. Darlington and W. Piper	New York, N. Y	Nov.	11.
14029	Pump	James Neal and Charles W. Emery	Boston, Mass	Jan.	1.
14024	Pump	Charles N. Lewis	Seneca Falls, N. Y	Jan.	1.
15878	Pump	W. T. and J. Barnes	Buffalo, N. Y	Oct.	14.
14884	Pump, cattle	Thomas H. Powers	Wyocena, Wis	May	13.
14576	Pump, feeding, method of varying the stroke of, for steam-engines.	John R. Sees	New York, N. Y	April	1.
14039	Pump for diving bells, hydro-pneumatic	George Williamson	Brooklyn, N. Y	Jan.	1.
	Pumping, condensing steam-engines which are used for. (See Class VI, letter E.)				
15173	Pump, rotary	Stephen D. Carpenter	Madison, Wis	June	24.
14186	Pumps	Edward N. Dickerson and Elisha K. Root.	Hartford, Conn	Feb.	5.
15888	Pumps	Edwin T. Ligon	Richmond, Va	Oct.	14.
15922	Pumps	John P. Cowing	Seneca Falls, N. Y	Oct.	21.
16229	Pumps	Jabez Coney	Boston, Mass	Dec.	16.
14372	Pumps, air escapes for,	Hiram Smith	Norwalk, Ohio	Mar.	4.
16024	Pumps, chain	John Robingson	New Brighton, Pa	Nov.	4.
15070	Pumps, double-acting steam, method of effecting uniform pressure upon the pumping piston of.	R. B. Gorsuch	New York, N. Y	June	10.
15134	Pumps, double-acting, valve for	John C. King	Belvidere, N. J	June	17.
14626	Pumps, method of operating by wind wheels	Jacob W. Goodwin, and Moses C. Hawkins.	Edenborough, Pa	April	8.
14599	Pumps, rotary	Thomas Crane	Fort Atkinson, Wis	April	8.
15059	Pumps, rotary	John Broughton	Chicago, Ill	June	10.
15221	Pumps, rotary	Charles N Clow	Port Byron, N. Y	July	1.
15274	Pumps, rotary	James A. Bazin	Canton, Mass	July	8.
15280	Pumps, rotary	Charles N. Clow	Port Byron, N. Y	July	8.
15211	Pumps, steam, method of operating steam valves of.	Remy Henry, assignor to James Smith	Melrose, N. Y	June	24.
15227	Pumps, steam, method of operating valves of	Robert H. Fletcher	Brooklyn, N. Y	July	1.
16154	Siphon à clapet	Henry M. Walker	Watertown, Conn	Dec.	2.
16178	Siphon rams, arrangement of valves, &c, in	Erastus W. Ellsworth	East Windsor Hill, Conn	Dec.	9.
14623	Springs, surface, method of treating	Anson Wolcott	East Bloomfield, N. Y	April	8.
14617	Valve, automatic thermo-hydro-olaio-pneumatic.	Earl Parker and William Reynolds	East Hartford, Conn	April	8.
15030	Valve, conical, method of attaching stem to a.	Henry R. Worthington	Brooklyn, N. Y	June	3.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15192	Valve, elastic, tubular	Franklin Peale	Philadelphia, Pa	June 24.
15960	Valve, puppet	R. P. Bradley	Cuyahoga Falls, Ohio	Oct. 28.
14627	Valves, arrangement of, for hydraulic-engines.	John D. Heaton	Dixon, Ill	April 8.
14646	Water, mechanism by which cattle raise, for themselves.	J. A. Ayres	Hartford, Conn	April 15.
14525	Water-meter	A J. Sweeney	Wheeling, Va	Mar. 25.
14921	Water-meter	Nathan B. Marsh	Cincinnati, Ohio	May 20.
15597	Water, method of apylying one stream of, to assist in raising another.	Charles J. P. Ariail	Roxbury, Conn	Aug. 26.
16235	Water-mill, portable	John Heller	East Lampeter, Pa	Dec. 9.
14535	Water-wheel	John Haseltine	Goffstown, N. H	Mar. 25.
15175	Water-wheel	Wilbur M. Davis	Carmel, Me	June 24.
15309	Water-wheel	John Tyler	West Lebanon, N. H	July 8.
19977	Water-wheel	G. E. W Herbert	Cohocton, N. Y	Oct. 28.
14882	Water-wheel, reacting	George W. Pittock, John B. Stott, and Galen Richmond.	Troy, N. Y	May 13.
15381	Water-wheel, reacting	A. Monroe	Worcester, Mass	July 22.
15463	Water-wheels, gates for, method of operating.	John C. Shorey, assignor to himself and A. J. Webster.	Rochester, N. H	July 29.
16027	Water-wheels, method of starting and stopping	David M. Tyler	Lisle, N. Y	Nov. 4.
15273	Wells, water from, method of drawing	H. B. Barber	Scott, N. Y	July 8.
15970	Wheel, current	Plumer Chesley	Candia, N. H	Oct 28.
16110	Wheel, Fourneyron turbine	Stephen K. Baldwin	Gilford, N. H	Nov. 25.
14793	Wheels, turbine, guides or shutes for, construction of.	Joseph Bastion	Theresa, N. Y	May 6.
14015	Wind-mill	Benjamin Fenn	Hartford, Ohio	Jan. 1.
15714	Wind-mill	Ephraim Whitman	Abington, Mass	Sept. 9.

14572	Wind-wheels	Francis Peabody	Salem, Mass	April 1.
14459	Wind-wheel, self-regulating	A. Lempcke	Pleasant Mount, Pa	Mar. 18.
15194	Wind-wheel, self-regulating	Francis Peabody	Salem, Mass	June 24.
14099	Wind-mills, speed of, method of regulating	Frank G Johnson	Brooklyn, N. Y	Jan. 15.
14143	Wind-wheels, velocity of, method of regulating	Francis Peabody	Salem, Mass	Jan. 22.

CLASS XII.—LEVER, SCREW, AND OTHER MECHANICAL POWER, *as applied to pressing, weighing, raising, and moving weights.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15142	Bands, non elastic, for bales of cotton and other fibrous materials.	D. McComb	Memphis, Tenn	June 17.
14213	Belt fastenings	Abner Whiteley	Springfield, Ohio	Feb. 5.
14389	Belting or banding, India rubber, manufacture of.	John H. Cheever	Boston, Mass	Mar. 11.
14175	Belt or band fastenings	George D. Young	Plymouth, Mass	Jan. 29.
15795	Belt punch	A. Simpson, assignor to S. H. F. Bingham	Worcester, Mass Weston, Mass	Sept. 23.
16222	Cant hook, adjustable, for moving logs, &c	Mark Alcutt	Hancock, N. H	Dec. 16.
16283	Crane, blacksmith's	William Maher	Slack, Ky	Dec. 23.
14927	Elevator for cotton, sugar cane, &c	E. Price	Waterproof, La	May 20.
	Gearing, link, for horse powers. (See Class XIII, letter H)			
14282	Grapple for raising stone	Marcus M. Cass and Lawson R. Bigelow	Watkins, N. Y	Feb. 19.
14671	Hoisting coal, apparatus for	George Martz	Pottsville, Pa	April 15.
14666	Hoisting drums	George W. La Baw	Jersey City, N. J	April 15.
1 233	Jack, lifting	Harvy Gray	Bristol, Conn	Dec. 16.
14170	Jacks, screw	Henry F. Shaw	South Boston, Mass	Jan. 29.
	Lubricating grist-mill spindles, apparatus for. (See Class IV.)			

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Lubricating slide-valves, method of operating and. (See Class VI, letter V.)			1856.
	Lubricating spindle-steps. (See Class IV.)			
	Lubricating throstle-spindles (See Class IV.)			
	Lubricator. (See Class IV.)			
	Lubricator. (See Class IV.)			
	Lubricator. (See Class IV.)			
	Lubricator. (See Class IV.)			
14261	Oil-box for axles with conical journals	William D. Titus	Brooklyn, N. Y.	Feb. 12.
15145	Packer, flour, clutch for	John T. Noye	Buffalo, N. Y.	June 17.
14065	Presses, cheese	William C. Pancost	Geneva, Ohio	Jan. 8.
14093	Presses, cotton	Caleb S. Hunt	Bridgewater, Mass.	Jan. 15.
15936	Presses, cotton	Wm. F. and Chas. J. Provost	Selma, Ala.	Oct. 21.
14493	Presses for punching	Geo. H. Corlis and Elisha Harris	Providence, R. I.	Mar. 25.
14031	Presses, hay and cotton	Joseph Peevy	Passadumkeag, Me.	Jan. 1.
14663	Presses, hay and cotton	Simon Ingersoll	Green Point, N. Y.	April 15.
14009	Presses, power, chain for	Nathan Chapman	Mystic river, Conn.	Jan. 1.
14733	Scale, grain, electro-magnetic	Nathan M Phillips	New York, N. Y.	April 22.
14119	Scales, platform	Francis M. Strong and Thomas Ross	Vergennes, Vt.	Jan. 15.
16286	Scales, R. R. platform, arrangement of	Lea Pusey	Downingtown, Pa.	Dec. 23.
14198	Scales, weighing	S. S. Mills and M. Bissell	Charleston, S. C.	Feb. 5.
14361	Scales, weighing	James Kelly	Sag Harbor, N. Y.	Mar. 4
14702	Scales, weighing	R. F. Wolcott	Claremont, N. H.	April 15.
16302	Scale, weighing	E. Sampson, assignor to the "Vergennes Scale Manufacturing Co"	Vergennes, Vt	Dec. 23.
14382	Scale, weighing, beams	William Yost	Goshen, Ohio	Mar. 4.
14159	Shafts, &c., universal joint for connecting	Jonas Hinkley	Huron, Ohio	Jan. 29.
14210	Shafts, wrought iron, making	Otis Tufts	Boston, Mass.	Feb. 5.
14939	Weighing cart	James W. Martin, assignor to himself and Lewis Rotherwell.	Burlington, N. J	May 20.
		W. H. Bramble	Cincinnati, Ohio	April 15; antedtd. April 8.

CLASS. XIII.—GRINDING-MILLS AND MILL-GEARING, *including grain-mills, mechanical movements, horse-power, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14199	Bolts, flour	S. C. Mendenhall	Richmond, Ind	Feb. 5.
15455	Bolts, flour	S. C. Mendenhall and J. Conner	Richmond, Ind	July 29.
15697	Gear, reversing	George Juengst	New York, N. Y	Sept. 9.
15630	Grain cleaner and separator	Richard Ward	Edinburg, Ind	Aug. 26.
16088	Grain, cleaning, machines for	Chase B. Horton	Elmira, N. Y	Nov. 18.
15785	Grain separators	H. E. Smith	Philadelphia, Pa	Sept. 23.
15879	Grain separators	Joel W. Cormack and F. C. Walker	Quincy, Ill	Oct. 14.
16103	Grain separators and conveyors	J. Lyndall, assignor to C. Roberts	Belleville, Ill	Nov. 18.
15180	Grindstones, hanging	David Hinman	Berea, Ohio	June 24.
14547	Horse-power	Richard Hunt	Freeport, Ind	Mar. 25.
	Horse-power, method of applying to fire-engines. (See Class V, letter F.)			
15296	Horse-power, reversible	Philip H. Kells	Hudson, N. Y	July 8.
14750	Horse-power, link-gearing for	Thomas D. Burk, assignor to J. C. Miller and C. A. Fowler.	Chicago, Ill	April 22.
15693	Horse-power, links of	A. W. Gray	Middletown, Vt	Sept. 9.
16040	Mill, cider	Benjamin Mackerley	New Petersburg, Ohio	Nov. 4.
16261	Mill, cider	Harry Abbott	Huron, N. Y	Dec. 23.
15255	Mill, corn and cob	Cyrus Roberts	Belleville, Ill	July 1.
15060	Mill, flour, cutting	Jonathan Burdge	Cincinnati, Ohio	June 10.
16249	Mill-grinding	Thomas B. Stout	Keyport, N. J	Dec. 16.
15680	Mill, metallic hemispherical, grinding dress of	A. Atwood	Troy, N. Y	Sept. 9.
14227	Mills, &c., feed-gates for, method of regulating.	Clement Dare	Cincinnati, Ohio	Feb. 12.
15488	Mills, corn and cob	Jacob O. Joyce	Cincinnati, Ohio	August 5, 1856; antedated Feb. 5, 1856.
14132	Mills, flouring	Thomas Crane	Fort Atkinson, Wis	Jan. 22.
14179	Mills, flouring	Joseph Weis	Bordentown, N. J	Jan. 29.
14164	Mills, grinding	Lucius Paige	Cavendish, Vt	Jan. 29.
15841	Mills, smut	Joel W Cormack	Quincy, Ill	Oct. 7.
15868	Mill stone dress	W. P. Coleman	New Orleans, La	Oct. 7.
16074	Mill-stone dress	Thomas B. Stout	Keyport, N. J	Nov. 11.
15346	Mill-stones, adjustment of	J. G. Siemers	St. Louis, Mo	July 15.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14128	Mill-stones, hanging	David Marsh, assignor to T. B. Stout J. A. Cody and David Marsh	Bridgeport, Ct Keyport, N. J Ohio	Jan. 15.
14109	Mill-stones, machines for dressing	R. D. Nesmith	Lake Village, N. H	Jan. 15.
14859	Mill-stones, machines for dressing	S. W. & R. M. Draper	South Dedham, Mass	May 13.
15250	Mill-stones, swinging spout for feeding	M. & C. Painter	Owings' Mills, Md	July 1.
16155	Motion, converting rotary into reciprocating	Albin Warth	New York, N. Y	Dec. 2.
14568	Motion, converting reciprocating into rotary, method of.	Robert Maffit	Bradford, Pa	April 1.
16303	Motion, converting reciprocating into rotary	Samuel Gissinger and John W. Kelberg, assignors to D. A. Morris.	Allegheny city, Pa	Dec. 23.
14473	Rods, connecting, adjusting the brasses of	John R. Sees	New York, N. Y	Mar. 18.
15284	Smut machines	R. M. Dempsey	Indianapolis, Ind	July 8.
15442	Smut machines	G. H. Starbuck and L. D. Gilman	Troy, N. Y	July 29.
15978	Smut machines	Harvey B. Ingham	Camptown, Pa	Oct. 28.

CLASS XIV.—LUMBER, *including machines and tools for preparing and manufacturing, such as sawing, planing, mortising, shingle and stave, carpenter's and cooper's implements.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14752	Auger	Kelsey Curtis, assignor to Winsted Auger Company	Winchester, Conn West Winsted, Conn	April 22.
	Augers, method of manufacturing. (See Class II, letter A.)			
14829	Barrel-heads, machine for manufacturing	N. W. Robinson	Keesville, N. Y	May 6.
15763	Bed-pins, manufacturing, device in machines for.	Henry Gross	Tiffin, Ohio	Sept. 23.

14511	Bench, carpenter's	J. W. Mahan	Lexington, Ill	Mar. 28	
15739	Bench, carpenter's	J. W. Mahan	Lexington, Ill	Sept. 16.	
14390	Bench, clamp	Clinton W. Clapp	Wappinger's Falls, N. Y.	Mar. 11.	
14569	Bench, mitering	J. W. Mahan	Lexington, Ill	April 1.	
14105	Bits for boring felloes and tenoning spokes	Horatio McGrath	Meigs' Creek, Ohio	Jan. 15.	
15652	Boring and mortising hubs, method of	Henry Hayes	Quincy, Ill	Sept. 2.	
14416	Boring and mortising machine	George N. Stearns	Syracuse, N. Y	Mar. 11.	
16101	Boring and mortising machine	G. H. Stevens	Lowell, Wis	Nov. 18.	
14223	Boring and turning wood, machine for	F. and A. Brown	New York, N. Y	Feb. 12.	
15678	Boring hubs for boxes, method of	Samuel H. Yocum	Shelbyville, Ind	Sept. 2.	
14968	Boring hubs, tool for	H. L. Mooney and W B. Carter	Astoria, Ill	May 27.	
14327	Boring machine	James Temple	Birmingham, Pa	Feb. 26.	
16241	Boring machine	Samuel Klahr	Reamstown, Pa	Dec. 16.	
15022	Boring machines	Wm. Samuels and George L. Stansbury	Jackson, Ind	June 3.	
14479	Boring machines, adjustment in	Israel W. Ward	Birmingham, Pa	Mar. 18; Feb. 16.	antedated
14329	Braces in carpentry, instruments for measuring the lengths of.	Heman Whipple	South Shaftesbury, Vt	Feb. 26.	
14984	Calipers for measuring irregular forms	E. T. Miller	Charlestown, Mass	May 27.	
15530	Chairs, manufacturing	Edward Q. Smith	Cincinnati, Ohio	Aug. 12.	
14522	Clamp for planking ships	Solon Staples	Bath, Maine	Mar. 25.	
14676	Clamp, floor	H. W. Oliver	Whitneyville, Conn	April 15.	
	Clothes-pins, machinery for making. (See Class XVII.)				
14307	Dove-tailing machine	Ari Davis and Asahel Davis	Lowell, Mass	Feb. 26.	
14427	Dove-tailing machine	Edwin Wight	Philadelphia, Pa	Mar. 11.	
15301	Dove-tailing machine	Lysander A. Orcutt	Albany, N. Y	July 8.	
15727	Felloes, dressing, machine for	W. M. Bullock	Marcy, Ind	Sept. 16.	
14987	Felloes, machine for manufacturing	A. B. Richmond	Meadville, Pa	May 27.	
15445	Forms, ellipsoidal, method of turning	G. W. Walton and H. Edgarton	Wilmington, Del	July 29.	
14421	Forms, irregular, machine for cutting	Henry D. Stover and J. W. Bicknell	Boston, Mass	Mar. 11.	
15859	Forms, irregular, machine for cutting	Charles Spofford	West Amesbury, Mass	Oct. 7.	
15153	Forms, irregular, method of operating cutters in their head for	John Tear	Chicago, Ill	June 17.	
15327	Forms, ornamental, method of turning	P. C. Cambridge, jr	North Enfield, N. H	July 15.	
15196	Forms, tapering, method of turning	H. E. Salisbury	Platea, Pa	June 24.	
15556	Guages, carpenters'	Joel Bryant	Brooklyn, N. Y	Aug. 19.	
	Gimlet-handles. (See class II.)				
14753	Hoop-machine	George W. Holmes, assignor to James C. Marble	Backfield, Me	April 22.	
14833	Hoop-machine	Joseph & Sylvester Sawyer	Fitchburg, Mass	May 6.	

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15780	Hoop-machine	J. & S. Sawyer	Fitchburg, Mass	Sept. 23.
15865	Hoop-machine	William B. Wood	Fitchburg, Mass	Oct. 7.
15768	Hoops, notching, machine for	Daniel Lamson	East Weymouth, Mass	Sept. 23.
16225	Hoops, wooden, method of planing and tapering.	Clark H. Brown	Forest Port, N. Y	Dec. 16.
14871	Knives to cutter-heads, method of securing	W. D. Hooker	Dedham, Mass	May 13.
15045	Last holders, revolving	Josiah Mumford	Clarksburg, Ohio	June 3.
14647	Lasts, securing and releasing blocks of	Andrew J. Barnhart	Hartfield, N. Y	April 15.
14126	Lath machine	John L. Brown, assignor to himself and Charles Learned.	Indianapolis, Ind	Jan. 15.
14499	Lath machine	Jesse Gilman	Nashua, N. H	Mar. 25.
14027	Lath sawing machines, bed for	Thomas R. Markillie	Winchester, Ill	Jan. 1.
14578	Lathe	Henry C. Spalding	New York, N. Y	April 1.
14787	Lathe	Albert H. Brown, assignor to Tingley & Veile.	Albany, N. Y	April 29.
14941	Lathe attachment for turning irregular orms.	Milton Roberts, assignor to M. Roberts, Isaac Roberts, and Isaac N. Felch.	Belfast, Me	May 20.
16108	Lathe for cutting fluted mouldings	J. Anderson, J. McLaren, and J. Bryant	New York, N. Y	Nov. 25.
14632	Lathes, chuck for	Michael Neckerman	Pittsburg, Pa	April 8.
14899	Lathes, cutter-head for	Milton Roberts, assignor to Milton Roberts and Isaac N. Felch.	Belfast, Me	May 13.
16192	Lathes for irregular forms	Lemuel Smith	Plymouth, Conn	Dec. 9.
16105	Lumber feeding rollers, parallel ytelding of, device for governing the.	Josiah B. Pomroy	Chicago, Ill	Nov. 18.
15053	Mitre box	William P. Wood, assignor to Samuel D. Vaughan and William P. Wood.	Washington, D. C	June 3.
16020	Mortising chisel to its mandrel, joint for uniting a.	Joseph R. Perry	Port Clinton, Pa	Nov. 4.
14071	Mortising machine	William Stoddard	Lowell, Mass	Jan. 8.
14106	Mortising machine	J. A. Merriman	Hinsdale, Mass	Jan. 15.
14564	Mortising machine	Edward Joslin	Keene, N. H	April 1.
15467	Mortising machine	T. R. Bailey	Lockport, N. Y	Aug. 5.
14160	Mortising tool	Hazard Knowles	New York, N. Y	Jan. 30.

14228	Planer, rotary, for felloes	C. H. Dennison	Green Rivers, Vt	Feb. 12.
14363	Planes, bench	Ebenezer Mathers	Morgantown, Va	Mar. 4.
16309	Planes, carpenter's, method of adjusting the bits of.	Thomas D. Worrall	Lowell, Mass	Dec. 23.
14423	Plane stock	John B. Thomas	Cincinnati, Ohio	Mar. 11.
16163	Planing, bramah, wheel	Edwin Jones	Greenfield, Mass	Dec. 2.
14604	Planing felloes, machine for	A. W. Fox	Athens, Penn	April 8.
14455	Planing knives, rotary, arrangement of	Dan'l N. Hurlbert	Utica, N. Y	Mar. 18.
14480	Planing machine	C. B. Morse	Rhinebeck, N. Y	May 13.
15403	Planing machine	Asahel Lockwood, assignor to L. B. Flanders.	Chicago, Ill	July 22.
16185	Planing machine	Hudson Osgood	Waterville, Maine	Dec. 9.
14038	Planing machines, arrangement of feed-rollers for.	H. C. Wight	Worcester, Mass	Jan. 1.
15129	Planing machines, certain devices in	Valentine Houck	Buffalo, N. Y	June 17.
14263	Planing machines, cutter-heads for	Loison D. Towne	Worcester, Mass	Feb. 12.
15365	Planing machines, cutter-heads for	Lewis M. Berry	Boston, Mass	July 22.
14272	Planing machines, feed-rollers of, gearing for.	Chas. Burleigh, assignor to Putnam Machine Company.	Fitchburg, Mass	Feb. 12.
16144	Planing machines, method of clamping cutters in cutter heads for.	Jonathan P. Grosvenor	Boston, Mass	Dec. 2.
14130	Plough-handles, &c., machine for bending	Benjamin F. Avery	Louisville, Ky	Jan. 22.
15382	Polishing machine	John Moore	Gardiner, Maine	July 22.
15600	Rafters, laying out, instrument for	Legrand Crofoot	Syracuse, N. Y	Aug. 26.
15398	Riving equal pieces from a block, method of.	Harry White	Oneida Castle, N. Y	July 22.
15163	Saw for sawing machines, self-setting or self-raking.	Aza Arnold	Washington, D. C	June 24.
15718	Saw-gummer	L. A. Dole, assignor to Dole, Silver & Felch.	Salem, Ohio	Sept. 9.
15811	Saw-gummers	S. J. Lewis and W. Alston	Bordentown, N. J	Sept. 30.
14863	Saw, hand	Jackson Gorham	Bairdstown, Ga	May 13.
15399	Sawing coopers' hoops, machine for	James O. Woodward	Taunton, Mass	July 22.
15216	Sawing felloes, machine for	David Bowen	Wadesville, Va	July 1.
14339	Sawing machine	Wm. P. Wood, assignor to W. P. Wood and Jno. S. Gallaher, jr.	Washington, D. C	Feb. 26.
14757	Sawing machine	Thomas J. Alexander	Westerville, Ohio	April 29.
15026	Sawing machine	H. S. Vrooman	Logansport, Ind	June 3.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15012	Sawing machine	William D. Leavitt	Cincinnati, Ohio	June 3.
15438	Sawing machine	T T. Prosser	Oconomowock, Wis	July 29.
15414	Sawing machinery	A. S. T. Copeland	Pittsburg Pa	July 29.
15790	Sawing machines, device in	Wm. P. Wood and Sam'l D. Vaughan	Washington, D. C	Sept. 23.
15078	Sawing-mills, head blocks of, method of operating.	Joseph Kurtzeman	Lancaster, Ohio	June 10.
15689	Sawing-mills, method of feeding	C. and G. S. Dilkes	Allowaystown, N. J	Sept. 9.
15559	Sawing-mills, method of operating velocity of feed for.	R. Eickemeyer	Yonkers, N. Y	Aug. 19.
16034	Sawing-mills, self-acting head and tail bocks for.	A. S. Walbridge	Burlington, Vt	Nov. 4, 1856; Canada, July 20, 1853.
15330	Sawing-mills, self-setting tail block for	Joel Dawson	Barnesville, Ohio	July 15.
14305	Saw-mill	Nathan T. Coffin	Knightstown nd	Feb. 26.
14909	Saw-mill blocks, method of operating	Bela Gardner	Florence, Mass	May 20.
14844	Saw-mill dogs	Geo. W. Hill, assignor to Francis Lyon and Geo. W. Hill.	Waverly, N. Y	May 6.
15893	Saw-mill pitmen, adjustable stirrups for	Samuel C. Norcross	Dixfield, Me	Oct. 14.
14206	Saw-mills	John S Snider	Lancaster, Ohio	Feb. 5.
14700	Saw-mills, head and tail blocks for	E. H. Stearns	Cincinnati, Ohio	April 15.
14943	Saw-mills, head blocks of, method of operating.	Lucius B. Adams	Smithfield, Pa	May 27.
15062	Saw-mills, head blocks of, method of operating.	John M. Carlisle	Williamston Springs, S. C	June 10.
14172	Saw-plates, teeth to, method of attaching	P. B. Tyler	Springfield, Mass	Jan. 29.
15304	Saws, circular and other, method of grinding.	Orrin Rice	Cincinnati, Ohio	July 8.
14950	Saws, circular, grinding	William Clemson	East Woburn, Mass	May 27.
14957	Saws, circular, guard for	Henry Gross	Tiffin, Ohio	May 27.
15130	Saws, circular, mechanism for adjusting, obliquely to their arbors.	George Hutton	New York, N. Y	June 17.
14379	Saws, circular, method of adjusting	Andrew L. Whitley	St. Louis, Mo	March 4.
14705	Saws, circular, method of adjusting, for concave or convex work.	James M. Kern, assignor to Isaac Scott and E. P. Fitch.	Morgantown, Va	April 15.
14268	Saws, circular, method of concaving	James M. Kern, assignor to Enoch P. Fitch and Isaac Scott	Morgantown, Va	Feb. 12.

15868	*Saws, circular, method of driving*	*John Broughton*	*Chicago, Ill*	*July*	*22.*
14241	*Saws, circular, method of hanging and adjusting.*	*Westel W. Hurlbut*	*Utica, N. Y*	*Feb.*	*12.*
14188	Saw-set	John G. Ernst	York, Pa	Feb.	5.
14936	Saw-set	Edward S. Watson	Chenango Forks, N. Y	May	20.
15007	Saw-set	Benjamin Gilpatrick	Lowell, Mass	June	3.
15119	Saw-set	Lebbius Brooks	Great Falls, N. H	June	17.
15679	Saw-set	Wyllys Avery	Salisbury Centre, N. Y	Sept.	9.
15731	Saw-set	Abraham Casey	New York, N. Y	Sept.	16.
14055	Saws, filing	Jacob Erdle	West Bloomfield, N. Y	Jan.	8.
15940	Saws, filing and setting	H. R. Howlett, assignor to himself and A. W. Goodell.	New York, N. Y	Oct.	21.
15773	Saws, grinding, machine for	A. S. Nippes	Lower Merrion, Pa	Sept.	23.
16223	Saws, grinding, machine for	Emanuel Andrews	Elmira, N. Y	Dec.	16.
14413	Saws, mulley, method of straining	Theodore Sharp	North Greenbush, N. Y	Mar.	11.
14480	Saw-spindles, circular, method of suspending	Hiram Wells	Florence, Mass	Mar.	18.
14485	Saws, reciprocating, method of adjusting	J. Z. A. Wagner	Philadelphia, Pa	Mar.	18.
14930	Saws, reciprocating, method of hanging	John Robingson	New Brighton, Pa	May	20.
15890	Saws, reciprocating, method of hanging	John H. Moore	West Troy, N. Y	Oct.	14.
16062	Saws, reciprocating, method of hanging	George D. Lund	Yonkers, N. Y	Nov.	4.
16295	Saws, reciprocating gig, method of hanging	John Stowell	Charlestown, Mass	Dec.	23.
15220	Saws, wood, method of framing and straining	E. S. Clapp	Montague, Mass	July	1.
15082	Saw-teeth, circular, method of repairing	M. L. Parry	Galveston, Texas	June	10.
14101	Shingle machine	A. Kendall	Cleveland, Ohio	Jan.	15.
14103	Shingle machine	Samuel M. King	Lancaster, Pa	Jan.	15.
14347	Shingle machine	Ransom Clifford	Lowell, Mass	Mar.	4.
14765	Shingle machine	John B. Evins	Greencastle, Ind	April	29.
14914	Shingle machine	Edward Hedley	Shelby, N. Y	May	20.
14977	Shingle machine	Harry White	Oneida Castle, N. Y	May	27.
15081	Shingle machine	Jason Palmiter	Jamestown, N. Y	June	10.
15302	Shingle machine	Adrian V. B. Orr	Lancaster, Pa	July	8.
15749	Shingle machine	D. D. Tupper	Boston, Mass	Sept.	16.
15747	Shingle machine	P. O. Sherwin	Jamestown, N. Y	Sept.	16.
14792	Shingle machine, rotary	C. F. Beverly	Lancaster, Ohio	May	6.
15728	Shingle machines, feed motion for	John Broughton	Chicago, Ill	Sept.	16.
15756	Shingles, feeding and sawing, method of	George Craine	Fairfield, Iowa	Sept.	23.
15720	Shingling bracket	L. A. Goodsell, assignor to L. A. Goodsell and D. H. Holt.	Hartford, Conn	Sept.	9.
16121	Spokes by hand, machine to aid in making	Edward Julier	Sharon, Ohio	Nov.	25.
14718	Spokes, driving, machine for	Christian Haas and John C. Noll	Chicago, Ill	April	22.
14018	Spoke-shave	Elijah Holmes	Lynn, Mass	Jan.	1.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14635	Spoke-shave	Martin Snow	North Bridgewater, Mass.	April 8.
15446	Spools, manufacturing, machine for	A. D. Waymouth	Fitchburg, Mass.	July 29.
15757	Stave jointer	A. H. Crozier	Oswego, N. Y.	Sept. 23.
16095	Stave jointer	B. McKeage	Accotink, Va.	Nov. 18.
15285	Stave joints	J. K. Derby	Jamestown, N. Y	July 8.
14299	Stave machine	George W. Livermore, assignor to Livermore Manufacturing Co.	Cambridge, Mass	Feb. 19.
15429	Stave machine	John McMurtry	Lexington, Ky	July 29.
15423	Stave machinery, certain improved devices in.	Charles Hoyt	West Aurora, Ill.	July 29.
14136	Sticks to polygonal forms, machine for dressing.	Joseph W. Killam	East Wilton, N. H.	Jan. 22.
16041	Tenoning, etc., tool for	Alfred Tippett	Washington, D. C.	Nov. 4.
15572	Tenoning machine	John Potter	Ellicottsville, N. Y.	Aug. 19.
14289	Tenoning window blinds, machine for	John H. Palmer	Elmira, N. Y.	Feb. 19.
14220	Tonguing and grooving tapering boards, method of	B. J. Barber	Ballston Spa, N. Y.	Feb. 12.
14173	Tree-nail machines, device in	Elbridge Webber	Gardiner, Me	Jan. 29.
	Trees, felling, machine for. (See Class I, letter T.)			
15913	Trees, felling, method of	Simon Ingersoll, assignor to Farmers and Mechanics' Manufacturing Co.	Green Point, N. Y.	Oct. 14.
15178	Trees, felling, method of, by saws	George C. Ehrsam	New York, N. Y.	June 24.
15310	Turning machine	Elbridge Webber	Gardiner, Me	July 8.
16308	Veneers from the log, machine for cutting	Joseph H. Goodell	Bridgeport, Conn	Dec. 23.
14337	Wheelwright machines	Chauncey H. Guard, assignor to John A. Scroggs and himself.	Brownville, N. Y	Feb. 26.
14577	Wheelwright machines	John Sitton	Williamston, S. C.	April 1.
15593	Wheelwrights' machine	Abijah D. Stowell, assignor to John A. Place.	Fulton, N. Y.	Aug. 19.
15901	Wheelwrights' machine	John Sitton	Williamston, S. C.	Oct. 14.
15079	Wheelwrights' machinery	A. S. Macomber	Bennington, Vt.	June 10.

14636	Wood, machine for bending	Edward J. Updegraff	York, Pa	
16157	Wood, method of applying steam to and of cutting scarfs from.	Job White	Belfast, Me	Dec. 2.
14405	Wood, method of bending	John C. Morris	Cincinnati, Ohio	Mar. 11.
14807	Wood, splitting, machine for	Charles Day and Alanson D. Brown	Lancaster, N. Y.	May 6.

CLASS XV.—STONE AND CLAY MANUFACTURES, *including machines for pottery, glass-making, brick-making, dressing and preparing stone, cements, and other building materials.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
16174	Brick, hollow, or building blocks, machines for pressing.	M. and J. H. Buck, and F. A. Cushman	Lebanon, N. H	Dec. 9.
15293	Brick-machines	James A. Hamer	Reading, Pa	July 1.
14100	Brick-machines	R. W. Jones	Greencastle, Ind	Jan. 15.
14155	Brick-machines	L. T. Delassize	New Orleans, La	Jan. 29.
14713	Brick-machines	P. S. Devlan	Reading, Pa	April 22.
14873	Brick-machines	Edmund Kingsland	New York, N. Y	May 13.
14947	Brick-machines	Martin Buck, Jas. H. Buck, and Francis A. Cushman.	Lebanon, N. H	May 27.
15276	Brick-machines	E. Braman and R. Peterson	Greencastle, Ind	July 8.
15546	Brick-machines	Isaac Harman, assignor to Isaac Harman and Wm. Bickel.	Tamaqua, Pa	Aug. 12.
15618	Brick-machines	H. B. Ramsey	Indianapolis, Ind	Aug. 26.
15766	Brick-machines	William A. Jordan	Thibodeaux, La	Sept. 23.
15798	Brick-machines	Henry Brad	Greencastle, Ind	Sept. 30.
15808	Brick-machines	Joseph A. Hill	Greencastle, Ind	Sept. 30.
15863	Brick-machines	G. I. Washburn and E. H. Bellows	Worcester, Mass	Oct. 7.
15905	Brick-machines, rotary	George Crangle	Philadelphia, Pa	June 3.
15471	Brick-press	John Boynton	East Hartford, Conn	Aug. 5.
15778	Brick-press, hydraulic	Ethan Rogers	Cleveland, Ohio	Sept. 23.
14012	Brick-presses	John B. Collen	Reading, Pa	Jan. 1.
14195	Brick-presses	Harvey J. Hughes	Davenport, Iowa	Feb. 5.
15135	Brick-presses	Lewis Kirk	Reading, Pa	June 17.

Classified List of Patents issued—Continued.

No	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14052	Bricks, building, form of	Edgar Conkling	Cincinnati, Ohio	Jan. 1.
14846	Bricks, machine, manufacture of	S. W. Wood	Washington, D. C	May 6.
15329	Brick, unburnt, machine for striking	Marenus P. Crapo	Bucksport, Cal	July 15.
15374	Building blocks from clay, &c., machine for moulding and pressing.	Ambrose and George M. Foster	New York, N. Y., and Fairhaven, Conn.	July 22.
15197	Clay, mixing, pug-mill for	Carl F. Schlickeysen	Berlin, Prussia	June 24, 1856; England, Feb. 24, 1856.
15540	Drill, rock	George H. Wood	Green Bay, Wis	Aug. 12.
16146	Drilling, rock machine for	Mastin and John P Gore	St. Louis, Mo	Dec. 2.
15595	Drills, rock	Wm. M. Barton, assignor to Wm. M. and Robert M. Barton.	Russellville, Tenn	Aug. 19.
15665	Glass, black bottle, manufacture of	John F. McCully	Gonsales county, Texas	Sept. 2.
15548	Glass fountain lamps, mould for pressing	Henry W. Adams	New York, N. Y	Aug. 19.
	Glass furnaces. (See Class V, letter F.)			
	Glass furnaces. (See Class V, letter F.)			
14838	Glass, molten, ladling of	Wm. P. Walter and Jacob Green	Philadelphia Pa	May 6.
16085	Glass, polishing, machines for	Phineas Burgess	New York, N. Y	Nov. 18.
14411	Kilns, lime	Job Sands	Sand's Mills, N. Y	Mar. 11.
15549	Kilns, lime	Levi Averill	Elmira, N. Y	Aug. 19.
16023	Marble and stone, machine for sawing	George I. Wardwell	Hatley, Canada West	Nov. 4.
14296	Marble in obelisk form, machines for sawing.	Philip Schrag and W. J. Von Kammerhueber.	Washington, D. C	Feb. 19.
14532	Marble in obelisk form, machines for sawing.	John A. Bailey	Detroit, Mich	Mar. 25.
14536	Marble in obelisk form, machines for sawing.	Issachar A. Heald	Springfield, Mass	Mar. 25.
14658	Marble in obelisk form, machines for sawing.	I. E Haviland	Galveston, Texas	April 15.
14729	Marble in obelisk form, machines for sawing.	James Miller	Buffalo, N. Y	April 22.
14342	Marble in taper form, machines for sawing	Christopher Amazeen	New Castle, N. H	Mar. 4.
14471	Marble in taper form, machines for sawing	C. A. Schultz	Chicago, Ill	Mar. 18.

15115	Marble-sawing machine	Cyrus Avery	Tunkhannock, Pa	June 17.
15242	Marble-sawing machine	Henry Lawrence	New York, N. Y.	July 1.
15328	Marble-sawing machine	Ira Carter	Malone, N. Y	July 15.
15383	Marble-sawing machine	John M. Mott, jr	Lansingburg, N. Y.	July 22.
14995	Marble-sawing machines	Josiah Ashenfelder	Philadelphia, Pa.	June 3.
15713	Marble-sawing machines	Jose Toll.	Locust Grove, Ohio	Sept. 9.
15419	Marble, sawing, machines for	Lewis S. Fisher	Waynesboro', Pa	July 29.
16086	Marble, sawing, machines for	William D. Gallaher	Bridgewater, Pa	Nov. 18.
14823	Marble, sawing, machines for, in kerfs of varying angles.	Samuel Nickelson.	Pulaski, Tenn	May 6.
14613	Mortar, machines for mixing lime and sand for.	Henry W. Hunt and John Sands	Peekskill, N. Y.	April 8.
15847	Mortar, mixing, machines for	Benjamin F. Field.	Beloit, Wis	Oct. 7.
15230	Sawing stone, machine for	John Grayson	Queenstown, Md	July 1.
14656	Saws, marble, straining	William B. Hatch.	Elmira, N. Y.	April 15.
14684	Saw, stone and marble	Henry H. White and Edward A. Gray	East Poultney, Vt	April 15.
15526	Stone, artificial	St. Julien Ravenel	Charleston, S. C.	Aug. 12.
14824	Stone, artificial, preparing	Robert Neisch	New York, N. Y.	May 6.
15335	Stone-dressing machine	A. M. George	New York, N. Y.	July 15.
15591	Stone, drilling and dressing, machines for	William M. Barton, assignor to William M. Barton and Robert M. Barton.	Russellville, Tenn	Aug. 19.
14495	Stone-drilling machines	Josephus Echols.	Columbus, Ga.	Mar. 25.
	Stone, grapple for raising. (See Class XII, letter G.)			
15410	Stone in taper form, machines for sawing	Henry I. Behrens	New York, N. Y.	July 29.
15380	Stone or marble, sawing, machine for	Matthew J. McBride	Logansport, Ind	July 22.
15289	Stone, quarrying and cutting, machine for	Charles Frost and A. W. Webster	Waterbury, Conn	July 8.
15892	Stone, sawing	John North.	Middletown, Conn	Oct. 14.
15299	Stone sawing-mill	C. A. Mills.	Dubuque, Iowa	July 8.
16035	Tile, drain, machine	T. Maycock, assignor to himself and H. Rice.	Buffalo, N. Y	Nov. 4.
16021	Trowels	L. D. Phillips.	Chicago, Ill	Nov. 4.
16139	Vessels, earthen, for hermetical sealing purposes.	Edwin Bennett	Baltimore, Md.	Dec. 2.
14537	Vessels, pots, &c., earthen, mould for	Philip Schrag.	Washington, D. C	Mar. 25.
	Walls, mastic, for covering. (See Class IV, letter M.)			

CLASS XVI.—LEATHER, *including tanning and dressing, manufacture of boots, shoes, saddlery, harness, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
16128	Boot and shoe soles, edges of, "edge keys" for making and polishing.	George C. Todd	Lynn, Mass.	Nov. 25.
14432	Boot and shoe soles, manufacture of	Lorenzo Stratton, assignor to himself and Luther Hill.	Feltonville, Mass.	Mar. 11.
14353	Boot crimps	George Fetter	Philadelphia, Pa.	Mar. 4.
16123	Boot legs, machine for turning	M. C. Chamberlin and W. Filkins.	Wyoming, N. Y.	Nov 25.
14380	Boots and shoes, application of soles to, by means of pressure, and gutta percha or other cements.	S. H. Whorf and Charles Rice	Roxbury and Boston, Mass	Mar. 4.
14216	Boots and shoes, composition soles to, mode of attaching.	John M. Wimley, assignor to John M. Wimley and W. H. Penrose.	Philadelphia, Pa.	Feb. 5.
15451	Boots and shoes, cutting out, machines for	James W. Wilder	Boston, Mass.	July 29.
15762	Boots and shoes, heels of, metallic braces for.	George W. Griswold	Carbondale, Pa.	Sept. 23.
14080	Boots and shoes, manufacture of.	S. H. Whorf, assignor to himself and Charles Rice.	Roxbury, Mass.	Jan. 8.
14060	Boots and shoes, peg cutters for.	Samuel R. Jones	Baltimore, Md.	Jan. 8.
14269	Boots and shoes, pegging	Alfred Swingle, assignor to Elmer Townsend.	Boston, Mass.	Feb. 12.
14020	Boots and shoes, pegging, machines for	Waterman B. Johnson	Sandwich, N. H.	Jan. 1.
14370	Boots and shoes, pegging, machines for	George Schuh and Phineas L. Slayton	Madison, Ind.	Mar. 4.
15866	Boots and shoes, pincers for lasting	B. F. Sturtevant, assignor to E. Townsend.	Skowhegan, Me.	Oct. 7.
14140	Boots and shoes, soles and heels of, machine for hammering leather for.	Jean Pierre Molliere	Lyons, France.	Jan. 22; France, July 22, 1853.
14426	Boots and shoes, soles of, machine for cutting out and "skiving" the, and also for cutting the "rands" therein.	William Wells and Mellen Bray	Turner, Me.	Mar. 11.
14951	Boot-trees.	Charles T. Eames	Milford, Mass.	May 27.
14856	Bridle-bits	Benjamin I. Day	York, Ind.	May 13.
15107	Collars, horse, machines for stuffing	H. G. Robertson	Greenville, Tenn.	June 10.
16107	Collars, horse, machines for stuffing	Joseph Albright.	Greenville, Tenn.	Nov. 25.
14803	Collars, horse, mould press for	Melvin C. Chamberlin	Sheldon, N. Y.	May 6.
15789	Gauges, feather edge	G. G. Townsend	Rochester, N. Y.	Sept. 23.
14469	Harness buckles	Nathan Post	East Cleveland, Ohio.	Mar. 18.

	Harnesses and mode of fastening, &c., to be applied to. (See Class X, letter V.)			
14477	Harness for shoeing horses	William P. Thomas	Hillsboro', Ind	Mar. 18.
15993	Harness, plough, back-band hook for	Noah Warlick	Lafayette, Ala	Oct. 28.
15057	Harness trace couplings	Charles K. Bradford	Lynn, Mass	June 10.
16114	Leather and morocco, polishing, machines for	William Crane	Brooklyn, N. Y	Nov. 25.
15816	Leather, finishing, machines for	Joseph Pyle	Wilmington, Del	Sept. 30.
14606	Leather, polishing, machines for	William P. Gamble	Philadelphia, Pa	April 8.
15121	Leather, sheets of, making, from currier's shavings or "buffings."	Charles F. Crockett	Newark, N. J	June 17.
14211	Leather, softening, machines for	John B. Wentworth	Lynn, Mass	Feb. 5.
15807	Leather, softening, machines for	John Greeleaf	Lowell, Mass	Sept 30.
14430	Leather splitting machines	Elisha Pratt, ass'r to E Pratt & H. P. Upton, assignors to E. Pratt and T. P. Pingree.	Salem, Mass	March 11.
16305	Leather, stamping, machine for, combined with a rolling machine.	Frederick Berry	Harrisburg, Pa	Dec. 9.
14698	Leather straps, &c., machines for raising and creasing.	George W. Pruyne	Mexico, N. Y	April 15.
	Leather, stuffing, compositions for. (See Class IV, letter C.)			
14499	Leather, stuffing, methods of	Francis A. White	Roxbury, Mass	August 5.
14821	Morocco, machines for figuring and polishing	Eugene L. Norton	Charlestown, Mass	May 6.
14534	Morocco, tools for figuring	Samuel Green	Lynn, Mass	March 25.
15462	Pegging jacks	Alfred Swingle, assignor to Elmer Townsend	Boston, Mass	July 29.
14406	Pegging jacks	Alfred Bailey	Amesbury, Mass	July 29.
15055	Pegging machines, hand	William W. Batchelder	New York, N. Y	June 10.
15575	Saddles, cart	H. A. Rains	Nashville, Tenn	Aug. 19.
15681	Saddles, ladies' riding	Henry Adams	New York, N. Y	Sept. 9.
15392	Saddles, riding	Jno. C. Fr. Salomon and Geo. E. Cooper	Baltimore, Md	July 22.
15744	Saddles, riding	Pascal Plant	Chicago, Ill	Sept. 16.
16032	Saddles, riding, stirrups for	Richard Trussell	Brooklyn, N. Y	Nov. 4.
14438	Saddle-tree, "dumb jockey," the "cross" or "horns," &c., being made of gutta-percha.	Samuel Blackwell	Middlesex, England	March 18, 1856; England, March 9, 1853.
15077	Saddle-trees, mode of attaching pads to	James Ives	Mount Carmel, Conn	June 10.
14040	Shoe bindings, manufacture of leather	J. Turner, jr., assignor to W. Covell	Charlestown, Mass	Jan. 1.
15176	Shoemakers' edge planes	Issac A. Dunham	North Bridgwater, Mass	June 24.
14799	Shoemakers' head blocks, pegging jacks, or	Thomas D. Bailey	Lowell, Mass	May 6.
16280	Shoe pegs, machine for pointing	Jesse Ladd	Holderness, N. Y	Dec. 23.
16013	Shoes, india rubber, catch for	Nathaniel Hayward	Colchester, Conn	Nov. 4.
15896	Tan liquor to hides, order of applying	S. W. Pingree	Methuen, Mass	Oct. 14.
14399	Tanning	R. Gould	Whitewater, Wis	March 11.
14375	Tanning apparatus	Abraham Steers	Medina, N. Y	March 4.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15303	Tanning hides	Samuel W. Pingree	Methuen, Mass	July 8.
15157	Tanning pre-compositions	J. P. Williams, assignor to H. L. Williams	Salem, Mass	June 17.
15736	Tanning, preparation of hides for	George W. Hatch	Princeton, Ill	Sept. 16.
15844	Tan vats, construction of hide frames in	Elias A. Eliason	Georgetown, D. C	Oct. 7.
15826	Trunks	S. F. Summers	St. Louis, Mo	Sept. 30.
16125	Trunks, travelling	Samuel W. Phelps	Cincinnati, Ohio	Nov. 25.
14879	Trunks, wardrobe	W. J. McCraken	Rochester, N. Y	May 13.
	Vats, tan, arrangement of. (See Class IV.)			

CLASS XVII.—HOUSEHOLD FURNITURE, *machines and implements for domestic purposes, including washing machines, bread and cracker machines, feather-dressing, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15603	Apple parers	Charles P. Carter	Ware, Mass	Aug. 26.
15625	Apple parers	Marvin Smith	New Haven, Conn	Aug. 26.
15683	Apple parers	John D. Browne	Cincinnati, Ohio	Sept. 9.
15224	Apples, cutting and coring, machines for	Cook Darling	Utica, N. Y	July 1.
14775	Apples, paring, machines for	Ephraim L. Pratt	Philadelphia, Pa	April 29.
14800	Apples, paring, machines for	John D. Browne	Cincinnati, Ohio	May 6.
15133	Apples, paring, machines for	Horatio Keyes	Leominster, Mass	June 17.
15148	Apples, paring, machines for	S. D. Seagrave	Worcester, Mass	June 17.
16104	Apples, paring, machines for	C. P. Carter, assignor to Leonard Harrington.	Ware, Mass	Nov. 18.
16240	Apples, paring, machines for	H. Keyes	Leominster, Mass	Dec. 16.
16080	Apples, potatoes, &c., machines for paring	Ephraim L. Pratt, assignor to L. Harrington.	Philadelphia, Pa	Nov. 11.
16067	Apples, slicing, machines for	Ephraim L. Pratt	Philadelphia, Pa	Nov. 11.

15249	Bedstead	Ansel Moon	Bristol, Wis	July 1.
15609	Bedstead	Elias Howe, jr	Brooklyn, N. Y	Aug. 26.
14660	Bedstead fastenings	William Hinman	Elkhart, Ind	April 15.
16093	Bedstead fastenings	Spencer Lewis	Tiffin City, Ohio	Nov. 18.
16276	Bedstead fastenings	Sandy Harris	Philadelphia, Pa	Dec. 23.
15076	Bedsteads	William Huntress	South Berwick, Maine	June 10.
15235	Bedsteads	Silas Huddleston	Cottage Grove, Ind	July 1.
15552	Bedsteads	John H. Belter	New York, N. Y	Aug. 19.
15621	Bedsteads	Jacob J. Smith and Jonathan H. Pugh	Philadelphia, Pa	Aug. 26.
15648	Bedsteads	C. H. Gould	Concord, N. H	Sept. 2.
14668	Bedsteads, metallic	Marshall Lefferts	New York, N. Y	April 15.
15658	Bedstead, spring	W. H. Kimball and A. J. French, assignors to themselves and A. H. Noyes	Lynn, Mass	Sept. 2.
15209	Bedsteads, spring-bottoms for	Alvah Foote, assignor to himself, Ira Russell, A. B. R. Sprague, and Henry Phelps.	North Blandford, Mass	June 24.
14514	Bedsteads, wardrobe, combined with other furniture.	H. R. and J. L. Plimpton	Westfield, Mass	Mar. 25.
14593	Bells, pressure	Jason Barton	Middle Haddam, Conn	April 8.
15573	Bristle separator	Adonijah Randel	New York, N. Y	Aug. 19.
14883	Brooms and brushes	Thomas H. Powers	Nyocena, Wis	May 13.
15702	Brushes, wooden part of, machine for manufacturing the.	Thomas Mitchell	Lansingburg, N. Y	Sept. 9.
16126	Cans and vessels, apparatus for exhausting air from and hermetically sealing.	A. M. Purnell	Washington, D. C	Nov. 25.
14439	Cans, preserve, hermetically sealing	Charles Branwhite	New York, N. Y	Mar. 18.
15088	Cans, preserve, hermetically sealing	Charles E. Russell	St. Louis, Mo	June 10.
14245	Cans, preserve, sealing	R. W. Lewis	Honesdale, Pa	Feb. 12.
15478	Carpet fastenings	S. R. C. Denison	Rochester, N. Y	Aug. 5.
16036	Carpets, fabric for underlaying	William S. Pratt, assignor to J. S. C. Thursby.	Brooklyn, N. Y	Nov. 4.
15611	Caster, ball, for trunks and furniture	Judson Knight	Newark city, N. J	Aug. 26.
15946	Casters, bottle	Edward Gleason	Dorchester, Mass	Oct. 21.
15902	Caster-wheels, for furniture, finishing	P. B. Tyler	Springfield, Mass	Oct. 14.
15405	Chairs	James Fernald	Boston, Mass	July 22.
15021	Chairs and other articles, elastic bottoms for	Lysander Spooner	Boston, Mass	June 3.
14507	Chairs, fan rocking	Benjamin M. Lewy	Montgomery, Ala	Mar. 25.
14506	Chairs, fan rocking	Konrad Kiefer	New York, N. Y	Mar. 25.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries	Patentees	Residence.	Date of patent.
				1856.
14890	Chairs for ships' cabins	William Thomas	Hingham, Mass	May 13.
15931	Chairs, head-rests for	C. A. Mills	Dubuque, Iowa	Oct. 21.
14872	Chairs, invalid	Daniel S. James	New Market, Va	May 13.
15673	Chairs, invalid	C. L. Taillant	New York, N. Y	Sept. 2.
14877	Chairs, portable	Zebulon Lyford	Lowell, Mass	May 13.
16006	Chairs, rocking	Martin Eberhard	Philadelphia, Pa	Nov. 4.
14262	Clothes-clamps	W. H. Towers	Philadelphia, Pa	Feb. 12.
16065	Clothes-dryers	Samuel Morrill	Andover, N. H	Nov. 11.
14110	Clothes-pins, machine for making	Ephraim Parker	Burlington, Iowa	Jan. 15.
14466	Clothes-pins, machine for making	George W. Parker	Fitzwilliam, N. H	Mar. 18.
15543	Clothes, wringing	Robert P. Bradley, assignor to Joel Wisner	Cuyahoga Falls, Ohio East Aurora, N. Y.	Aug. 12.
14334	Coffee pots	Jacob M. Webb	Somerville, Tenn	Feb. 26.
14748	Coffee pots	Charles B. Waite and Joseph W. Senor	Fredericksburg, Va	April 22.
15835	Corn, green, from the cob, separating	Henry Walsh, assignor to H. Walsh and M. P. Espy.	Philadelphia, Pa	Sept. 30.
14855	Corn, green, from the cobs, machine for cutting.	William B. Coates	Philadelphia, Pa	May 13.
14259	Corn, green, instrument or grating	Benjamin Taylor	Philadelphia, Pa	Feb. 12.
14889	Crackers, moulding, machines for preparing dough for.	F. C. Treadwell, jr	New York, N. Y	May 13.
14123	Curtain fixtures	Lewis White	Hartford, Conn	Jan. 15.
15258	Curtain fixtures	James Stephens	New York, N. Y	July 1.
15615	Curtain fixtures	Purches Miles	Hartford, Conn	Aug. 26.
15676	Curtain fixtures	Ferdinand Wieterich and Conrad Hagen	New York, N. Y	Sept. 2.
15254	Dough, making and kneading, machines for.	Socrates M. Ridgaway	St. Michael's, Md	July 1.
16267	Egg-beaters, rotary	Ralph Collier	Baltimore, Md	Dec. 23.
14275	Forks	Sherburne C. Blodgett	Philadelphia, Pa	Feb. 19.
16058	Forks for handling heated plates	C. W. Hyatt	Auburn, N. Y	Nov. 11.

14760	Knives, cleaning, machines for	A. C. Ketchum, assignor to Edward B. Olcott.	New York, N. Y	April	29.
15266	Macaroni server	Albert L. Lincoln, assignor to Albert L. Lincoln and Charles M. Foss.	Boston, Mass	July	1.
14901	Meat, cutting, machines for	Gustavus V. Brecht	St. Louis, Mo	May	20.
15248	Meat, mincing, machine for	Oren Moses	Malone, N. Y	July	1.
15452	Meats, smoking, apparatus for	John Wright	Wilmington, Del	July	29.
15352	Mop heads	Hiram Thompson and Richard Q. Tuson	Lebanon, N. H	July	15.
16137	Mop heads	Frederic Allen	Worcester, Mass	Dec.	2.
15592	Mosquito canopy	Levi J. Henry, assignor to Benjamin J. Hart.	New York, N. Y	Aug.	19.
16226	Pans, bake	William Beach	Philadelphia, Pa	Dec.	16.
15829	Pillows and bolsters into their cases, implement for putting.	David B. Tiffany	Xenia, Ohio	Sept.	30.
15128	Pitchers, molasses	Henry W. Goodrich	Boston, Mass	June	17.
15231	Pitchers, refrigerating	Franklin D. Hall	Philadelphia, Pa	July	1.
14974	Preserve vessels, self-sealing	William J. Stevenson	New York, N. Y	May	27.
15132	Refrigerators	Samuel Hickok	Buffalo, N. Y	June	17.
15545	Refrigerators	Thaddeus Fairbanks, assignor to John C. Schooley.	St. Johnsbury, Vt	Aug.	12.
16320	Refrigerators	Charles Winship	New Haven, Conn	Dec.	23.
15450	Sad-iron heaters	Benjamin F. Wheelock	Mayville, Wis	July	29.
14219	Scissors	John Allender	New London, Conn	Feb.	12.
14672	Settees, reversible backs of, double acting catch for.	B. F. McCreary	New York, N. Y	April	15.
15143	Smoothing irons	Oscar F. Morrill	Boston, Mass	June	17.
15165	Smoothing irons	Leander W. Boynton	Worcester, Mass	June	24.
15723	Smoothing irons, furnace	John Taggart, assignor to John Taggart and Vernon Brown.	Roxbury, Mass	Sept.	9.
14796	Smoothing irons, self-heating	G. W. Bishup	Brooklyn, N. Y	May	6.
15801	Smoothing irons, self-heating	Willian D. Cummings	Washington, Ky	Sept.	30.
16254	Springs in upholstery, mode of securing	Wendell Wright	New York, N. Y	Dec.	16.
15943	Table and bedsteads, combined	Charles Baum	Philadelphia, Pa	Oct.	21.
	Table, centre, oracular wheel on. (See Class XXII, letter O.)				
15675	Table, self-waiting	A. Watson	Falmouth, Ky	Sept.	2.
14093	Tables, extension	E. A. Curley	Westport, Conn	Jan.	15.
15407	Tables, portable folding	C. D Barnitz	Baltimore, Md	July	29.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15840	Vegetable cutters	George W. Childs	Liberty, Pa	Oct. 7.
14297	Vegetables for preservation, machines for preparing.	Masa Branch Southwick	Parish of St. Hilaire, Canada East.	Feb. 19. England, Sept 15, 1853.
16078	Vegetables, machines for cutting	Jacob Geiss and Jacob Brozius	Belleville, Ill	Nov. 11.
	Wardrobe trunks. (See Class XVI, letter T.)			
14111	Wash-boards	Ira S. Parker	Sharon, Vt	Jan. 15.
14638	Wash-boards	Royal Hatch, assignor to Henry C. Hatch	Stafford, Vt	April 8.
14869	Wash-boards, machinery for manufacturing (B)	J. B. Holmes	Cincinnati, Ohio	May 13.
15353	Washing machine	H. H. Torrey	Buffalo Grove, Ill	July 15.
15503	Washing machine	Daniel N. Allard	Rokeby, Ohio	Aug. 12.
15580	Washing machine	John S. Shepler	Beaver, Pa	Aug. 19.
14391	Washing machines	Edward B. Clements and Silas G. Willie	Barnet, Vt	Mar. 11.
14818	Washing machines	James T. King	New York, N. Y	May 6.
15033	Washing machines	Solon Bishop	Homer, N. Y	June 3.
15034	Washing machines	John T. Bever	Haynesville, Mo	June 3.
15043	Washing machines	John McChesney	Louisville, Ky	June 3.
15199	Washing machines	V. R. Stewart	Weedsport, N. Y	June 24.
15684	Washing machines	J. F. Brown	Columbus, Ga	Sept. 9.
15711	Washing machines	R. Smith	Towanda, N. Y	Sept. 9.
15895	Washing machines	Jacob Purkey	York, Pa	Oct. 14.
15958	Washing machines	C. N. Tyler, assignor to H. Pardin	Washington, D. C	Oct. 21.
15949	Washing machines	James M. Kern	Morgantown, Va	Oct. 21.
15945	Washing machines	Albert A. Dailey	Willson, N. Y	Oct. 21.
15981	Washing machines	Josiah Mumford and John W. Wilson	Clarksburg, Ohio	Oct. 28.
15989	Washing machines	Moses D. Wells	Morgantown, Va	Oct. 28.
16068	Washing machines	Ira Reynolds	Republic, N. Y	Nov. 11.
16190	Washing machines	Isaac S. Roland	West Earl, Pa	Dec. 9.
14498	Water coolers and filterers	John S. Gallaher, jr	Washington, D. C	Mar. 25.
14162	Window-shades, stenciling, apparatus for	Daniel Lloyd	New York, N. Y	Jan. 29.
	Window-shades, transparent, processes for making. (See Class IV, letter P.)			
14217	Writing desks	Charles H. Bergman	New York, N. Y	Feb. 5.

CLASS XVIII.—ARTS, POLITE, FINE, AND ORNAMENTAL, *including music, painting, sculpture, engraving, books, paper, printing, binding, jewelry, &c.*

No	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15511	Accordeons	Anthony Faas	Philadelphia, Pa	Aug. 12.
15401	Accordeons, valves of	C. M. Zimmerman	Philadelphia, Pa	July 22.
14069	Bank notes, &c., from being counterfeited, method of preventing.	C. D. Seropyan	New Haven, Conn	Jan. 8.
15486	Bank notes, bills, &c., blanks for	Peter Hannay	Washington, D. C	Aug. 5.
16207	Books, &c., machine for paging	R. L. Hawes	Worcester, Mass	Dec. 9.
15282	Books, rounding and backing, machine for	John E. Coffin	Westbrook, Me	July 8.
15212	Breastpins, shield to protect	John H. Phillips, assignor to Leigh R. Holmead.	Washington, D. C	June 24.
14202	Daguerreotype cases, hinges of, fastening for the.	Samuel Peck	New Haven, Conn	Feb. 5.
14122	Daguerreotype plates, box for coating	Joseph H. Tompkins	Buffalo, N. Y	Jan. 15.
	Designs on wood, mode of producing. (See Class XIV, Letter W.)			
16141	Electrotype plates, mode of backing	William Filmer and Edward Bookout	New York, N. Y	Dec. 2.
15185	Envelope	Robert T. Knight	Philadelphia, Pa	June 24.
15475	Envelope	William B. Coates	Philadelphia, Pa	Aug. 5.
14614	Envelopes, construction of	Robert T. Knight	Philadelphia, Pa	April 8.
14643	Envelopes, machine for making	William H. Low	Albany, N. Y	April 8.
14625	Envelopes, machine for making	William W. Cotten	New York, N. Y	April 8.
15532	Glass, method of lettering and ornamenting.	Jerome B. Shaw	Pittsburg, Pa	Aug. 12; antedated Apr. 24.
14378	Guitars	William B. Tilton	New York, N. Y	Mar. 4.
14451	Inkstand	R. Gleason, jr	Dorchester, Mass	Mar. 18.
15527	Inkstands to desks, mode of attaching	L. R. Satterlee	Rochester, N. Y	Aug. 12.
15969	Jewelry, method of fastening	John B. Coppinger	New York, N. Y	Oct. 28.
14306	Knife and pencil case, combined	Richard Cross	Attleborough, Mass	Feb. 26.
15283	Lettering index, tool for	Edwin Crawley	Cincinnati, Ohio	July 8.
15019	Melodeons	Josiah A. Rollins	Buffalo, N. Y	June 3.
15014	Melodeons	W. N. Manning	Rockport, Mass	June 3.
15218	Melodeons	Jeremiah Carhart	New York, N. Y	July 1.
16094	Melodeons	Lafayette Louis	Boston, Mass	Nov. 18.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
16296	Melodeons	G. O. Spence	Elmira, N. Y.	Dec. 23.
15316	Melodeons, &c., base damper for	Riley Burditt, assignor to Jacob Estey and Hartsell P. Green.	Brattleboro', Vt	July 8.
15061	Melodeons, reed boards for, machine for manufacturing.	Jeremiah Carhart	New York, N. Y.	June 10.
14501	Miniature case	Halvor Halvorson, assignor to Slocum and Watkinson	Boston, Mass	Mar. 25.
16009	Musical instruments, automatic	Hiram Groves	New York, N. Y.	Nov. 4.
14955	Musical instruments, reed	Emmons Hamlin, assignor to Hamlin and Mason.	Boston, Mass	May 27.
15921	Musical instruments, reed for	J. C. Briggs	Woodbury, Conn	Oct. 21.
14970	Musical notation	Philetus Phillips	Middletown Point, N. J.	May 27.
15937	Music, instrumental, scale for	Abbey S. Smith	Rochester, N. Y.	Oct. 21.
14935	Music rack	Thomas Ward	Birmingham, Pa	May 20.
14992	Organs, parlor	Thomas Sands, assignor to Thomas Sands and John P. Lindsay.	Chelsea, Mass	May 27.
15066	Painted cloth, machine for rubbing and polishing.	Daniel Cushing	Wheeling, Va	June 10.
15065	Paint, machine or coating cloth with	Daniel Cushing	Wheeling, Va	June 10.
14260	Paper, &c., folding machine for	Thomas Thompson	Niverville, N. Y	Feb. 12.
15232	Paper clip	John L. Harvey and C. A. Mills	Dubuque, Iowa	July 1.
16256	Paper, cutting and folding, machine for	Charles Moore, assignor to himself, Wm. G. Sheldon, and Lorenzo B. Chandler.	Hartford, Conn	Dec. 16.
14697	Paper, folding, machine for	John North	Middletown, Conn	April 15.
15842	Paper, folding, machine for	Cyrus Chambers, jr	Kennett Square, Pa	Oct. 7.
16266	Paper, folding, machinery for	C. O. Crosby	New Haven, Conn	Dec. 23.
15228	Paper pulp, making boxes of, method of	A. French and C. Frost	Waterbury, Conn	July 1.
14303	Paper, wall, machine for edging	Henry J. Brunner	Nazareth, Pa	Feb. 26.
	Pearl ornaments, securing, in handles of cast metal. (See Class II, letter M.)			
14760	Pen and pencil case	Edward Baptis	Hoboken, N. J.	April 29.

14286	Pen-holder, flexible	Francis I. Klein	New York, N. Y.	Feb. 19.
15223	Pen, metallic	Alphonso Craytey	Brooklyn, N. Y.	July 1.
14203	Pens, metallic	Myer Phineas	New York, N. Y.	Feb. 5.
15992	Pens, metallic	John Wilcox	Philadelphia, Pa.	Oct. 28.
16242	Photographic baths	William and William H. Lewis	New York, N. Y.	Dec. 16.
15854	Photographic cameras, plate-holder for	W. and W. H. Lewis, assignors to Malonzo J. Drummond.	New York, N. Y.	Oct. 7.
14679	Photographic impressions, preparation of oil ground to receive.	Joel H. Tatum	Baltimore, Md.	April 15.
15809	Photographic instruments	D. J. Kellogg	Rochester, N. Y.	Sept. 30.
15924	Photographic pictures, bituminous ground for.	V. M. Griswold	Lancaster, Ohio	Oct. 21.
15336	Photographic pictures, collodion for	Victor M. Griswold	Lancaster, Ohio	July 15.
15341	Photographic pictures, mode of tinting	Giles Langdell and Marcus A. Root	Philadelphia, Pa.	July 15.
14946	Photographic pictures on glass	A. Bisbee and T. Day	Columbus, Ohio	May 27.
15497	Photographic pictures on glass, mode of coloring.	D. B. and H. B. Spooner	Springfield, Mass.	Aug. 5.
14300	Photographic pictures on japanned surfaces	H. L. Smith, assignor to William Neff and Peter Neff, jr.	Gambier, Ohio. Cincinnati, Ohio.	Feb. 19.
14184	Photographic plate vise	Levi Chapman	New York, N. Y.	Feb. 5.
14509	Piano-forte action	N. M. Lowe (formerly N. L. Murphy)	Boston, Mass.	Mar. 25.
14998	Piano-forte action	Joseph Becker	New York, N. Y.	June 3.
14948	Piano legs, attachments for	William Clark	New York, N. Y.	May 27.
14383	Pianos, grand, construction of	Daniel F. Haasz	Philadelphia, Pa.	Mar. 4.
15915	Picture cases, hinge for	Alfred P. Critchlow, assignor to A. P. Critchlow & Co.	Florence, Mass.	Oct. 14.
15068	Pocket-book. Polishing machine. (See Class XIV, letter P.)	J. C. Dickinson and Robert Bate	Hudson, Mich.	June 10.
15150	Portfolio	James Shaw	Providence, R. I.	June 17.
14246	Porte-monnaies	Edward Lindner and Conrad Hoffman	New York, N. Y.	Feb. 12.
15891	Porte monnaies	John L. Mason	Germantown, Pa.	Oct. 14.
14867	Porte-monnaies and pocket-books, fastening for.	James Hewson	Newark, N. J.	May 13.
15011	Press, copying	Christian Knauer	Pittsburg, Pa.	June 3.
16245	Press for printing hat linings	William Moultrie	New York, N. Y.	Dec. 16.
14238	Press, hand, for stamping letters, &c.	Anson Hatch	Forestville, Conn.	Feb. 12.
15358	Printers' composing stick	Oliver F. Grover	Middletown, Conn.	July 15.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14542	Printing cylinder	Justus Webster and Samuel H. Folsom	Lowell, Mass	Mar. 25.
14295	Printing from engraved plates, machine for	James F. Starrett	New York, N. Y.	Feb. 19.
15164	Printing instruments for the blind	A. Ely Beach	Stratford, Conn	June 24.
14919	Printing machine	John M. Jones	Palmyra, N. Y	May 20.
14907	Printing machine	John H. Cooper	Philadelphia, Penn	May 20.
14214	Printing machines, calico, movement for the doctors of.	John Standing, assignor to himself and James Baxendale.	Fall River, Mass	Feb. 5.
14789	Printing, machines for embossing and	Saml. W. Love, assignor to himself and Jacob M. Beck.	Philadelphia, Penn	April 29.
14016	Printing press	George P. Gordon	New York, N. Y	Jan. 1.
14558	Printing press	George F. Folsom	Roxbury, Mass	April 1.
15437	Printing press	Thomas and Alfred Parkes	Brooklyn, N. Y	July 29.
15477	Printing press	William H. Danforth	Salem, Mass	Aug. 5.
15740	Printing press	A. and B. Newbury	Windham Centre, N. Y	Sept. 16.
16109	Printing presses	F. L. Bailey	Boston, Mass	Nov. 25.
16221	Printing presses	Sargent, Charles G., and Abram Keach, assignors to Abram Keach and Caleb M. Marvel.	Lowell, Mass	Dec. 9.
16263	Printing presses	G. H. Babcock	Westerley, R. I	Dec. 23.
16138	Printing presses, feeding paper to	Moses S. Beach	Brooklyn, N. Y	Dec. 2.
16168	Printing presses, feeding paper to, machine for.	David Baldwin	Godwinville, N. J	Dec. 9.
16311	Printing presses, feeding paper to, machine for.	Moses S. Beach	Brooklyn, N. Y	Dec. 23.
14084	Printing presses, machine for feeding sheets of paper to.	Samuel I. Chapman	Charleston, S. C	Jan. 15.
15639	Printing press, feeding sheets of paper to, machine for.	David Babson	Groton, Conn	Sept. 2.
15312	Printing press, hand	Daniel K. Winder	Cincinnati, Ohio	July 8.
16270	Printing press, hand	Platt Evens, jr	Cincinnati, Ohio	Dec. 23.
15428	Printing press, portable	Samuel W. Lowe, assignor to Samuel Lowe and W. F. Scheible.	Philadelphia, Penn	July 29.
	Printing telegraph, electro-magnetic. (See			

14772	Printing woollen and other fabrics, machine for.	John Mcinnes	Braintree, Mass	April 29.
15574	Stamp, hand	Edwin A. Russell	Hookset, N. H	Aug. 19.
15764	Stamp, hand	Charles W. Hackett	Elmyra, N. Y	Sept. 23.
16167	Stamp, hand	Nathan Ames, assignor to Boston Hand-Stamp Company.	Saugus, Mass	Dec. 2.
14548	Stamp, self-inking	Nathan Ames	Saugus, Mass	April 1.
	Stencilling window-shades, apparatus for. (See Class XVII, letter W.)			
14670	Stereoscope case	William Loyd	Philadelphia, Pa	April 15.
15386	Type-casting machines, valve for	Edward Pelouze, jr	Philadelphia, Pa	July 22.
15340	Type, composing and distributing, machine for.	Julius J. Koenig	Chicago, Ill	July 15.
15501	Types, securing, on rotary beds	Richard M. Hoe	New York, N. Y	Aug. 5.
16102	Violins, &c., tail-piece for	C. M. Zimmerman	Philadelphia, Pa	Nov. 18.
14860	Violins, bow for	Samuel F. French	Franklin, Vt	May 13.
14056	Watch-key	Morris Falkenaw, Morris Pollak, and Solomon Wiener.	Hoboken, N. J	Jan. 8.
15073	Watchmakers, tools for	William Hart	Maysville, Wis	June 10.

Class XIX.—Fire-arms and implements of war, *and parts thereof, including the manufacture of shot and gunpowder.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
	Blastic compound. (See Class IV, letter C.)			
15315	Cannon automatic	Chas. E. Barnes, assignor to C. E. Barnes and M. W. Oliver.	Lowell, Mass	July 8.
14215	Cannon, many-chambered breech-loading	Charles C. Terrel, assignor to Charles C. Terrel and S. Crawford.	Shullsburg, W.s	Feb. 5.
15357	Cannon, mode of charging	Josiah Dodge	Dummerston, Vt	July 15.
14850	Cartridge opener	Jesse S. Butterfield and Simeon Marshall.	Philadelphia, Penn	May 13.
15141	Cartridges	Edward Maynard	Washington, D. C	June 17.
15707	Cartridges	Julius Riedel	Pleasant Hill, Ky	Sept. 9.
15996	Cartridges	G. W. Morse	East Baton Rouge, La	Oct. 28.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15369	Cartridges, fixed	George Buckel and Edward Dersh	Monroe, Mich	July 22.
14077	Fire-arms	James H. Merrill	Baltimore, Md	Jan. 8.
14095	Fire-arms	Joseph C. Day	Hackettstown, N. J	Jan. 15.
14667	Fire-arms	Palmer Lancaster	Burr Oak, Mich	April 15.
14774	Fire-arms	Frederick Newberry	Albany, N. Y	April 29.
14905	Fire-arms	Samuel Colt	Hartford, Conn	May 20, 1856; England, March 3, 1853.
15032	Fire-arms	Frederick B. E. Beaumont	Upper Woodball, Barnsley, county of York, England.	June 3, 1856; England, Feb. 20, 1855.
15041	Fire-arms	George Kesling	Lebanon, Ohio	June 3.
15144	Fire-arms	Henry S. North	Middletown, Conn	June 17.
15202	Fire-arms	James Warner	Springfield, Mass	June 24
15167	Fire-arms	Fordyce Beals	New Haven, Conn	June 24.
15292	Fire-arms	James E. Halsey	New York, N. Y	July 8.
15347	Fire-arms	George H. Soule	Jersey City, N. J	July 15.
15521	Fire-arms	Frederick D. Newbury, assignor to R. V. Dewitt, jr.	Albany, N. Y	Aug. 12.
15522	Fire-arms	Abner N. Newton	Richmond, Ind	Aug. 12.
15516	Fire-arms	Frederick W. Hoffman	New York, N. Y	Aug. 12.
15734	Fire-arms	E. H. Graham	Manchester, N. H	Sept. 16.
15797	Fire-arms	Joseph Adams	Cleveland, Ohio	Sept. 30.
15955	Fire-arms	Dr. Alexandre Le Mat	New Orleans, La	Oct. 21.
16124	Fire-arms	Dr. Alexandre Le Mat	New Orleans, La	Nov. 25.
14057	Fire-arms, breech-loading	L. H. Gibbs	New York, N. Y	Jan. 8.
14253	Fire-arms, breech-loading	Wm. H. Robertson and Geo. W. Simpson	Hartford, Conn	Feb. 12.
14491	Fire-arms, breech-loading	A. E. Burnside	Bristol, R. I	Mar. 25.
14554	Fire-arms, breech-loading	Hezekiah Conant	Hartford, Conn	April 1.
14780	Fire-arms, breech-loading	Simon F. Stanton	Manchester, N. H	April 29.
14949	Fire-arms, breech-loading	Nathan S. Clement	Worcester, Mass	May 27.
15072	Fire-arms, breech-loading	Henry Gross	Tiffin, Ohio	June 10.
15240	Fire-arms, breech-loading	B. F. Joslyn	Worcester, Mass	July 1.
15307	Fire-arms, breech-loading	William Mt. Storm	New York, N. Y	July 8.
15496	Fire-arms, breech-loading	Gilbert Smith	Buttermilk Falls, N. Y	ug. 5.

16288	Fire-arms, breech-loading	H. Schroeder, L. Salewski, and William Schmidt.	Bloomington, Ill.	Dec.	25.
14147	Fire-arms, cartridges of, primers for	Horace Smith and Daniel B. Wesson, assignors to the Volcanic Repeating Arms Company.	New Haven, Conn.	Jan.	22.
15262	Fire-arms, magazine hammer for	James N. Ward	U. S. Army	July	1.
14319	Fire-arms, percussion locks for	John H. B. Latrobe	Baltimore, Md.	Feb.	26.
14742	Fire-arms, projectiles for	Thomas Smith	Pittsburg, Penn.	April	22.
14017	Fire arms, repeating	Benjamin Grooms	Carmichael's, Pa	Jan.	1.
14820	Fire-arms, repeating	George Leonard	Shrewsbury, Mass.	May	6.
15110	Fire-arms, repeating	Alexander Hall, assignor to Alexander Hall and James C. Caldwell.	New York, N. Y.	June	10.
15388	Fire-arms, repeating	C. S. Pettengill	New Haven, Conn.	July	22.
14034	Fire-arms, repeating magazine	John C. Smith	Camden, N. J.	Jan.	1.
14118	Fire-arms, revolving	Eben T. Starr	New York, N. Y.	Jan.	15.
14420	Fire-arms, revolving	Wm. Mt. Storm	New York, N. Y.	Mar.	11.
14486	Fire-arms, revolving	F. Newbury	Albany, N. Y.	Mar.	11.
14710	Fire-arms, revolving	Gustav. Ad. Blittkowski and Frederick Wm. Hoffman.	New York, N. Y.	April	22.
15397	Fire-arms, trigger protector for	Bernard H. Westerhood	Philadelphia, Pa.	July	22.
14819	Guns, breech-loading	Edward Lindner	New York, N. Y.	May	6.
16011	Guns, breech-loading	C. Sharps	Philadelphia, Pa.	Nov.	11.
15244	Gun carriage	John Laurens	Charleston, S. C.	July	1.
14488	Guns, needle	G. A. Blittkowski and F. W. Hoffman	New York, N. Y.	Mar.	25.
14597	Guns, shot	George Buckel and E. Dorsch	Monroe, Mich.	April	8.
14513	Locks, gun	Edwin P. Monroe	Charlestown, Mass.	Mar.	25.
15682	Ordnance, breech-loading	G. W. Bishup	Brooklyn, N. Y.	Sept.	9.
15063	Percussion caps, water-proof	James Chattaway	Springfield, Mass	June	10.
15370	Percussion tape-priming	James Chattaway	Springfield, Mass	July	22.
14315	Projectiles	Charles T. James	Providence, R. I.	Feb.	26.
15577	Projectiles	N. Scholfield	Norwich, Conn	Aug.	19.
16076	Projectiles for fire-arms	William Taggart	Haverhill, Mass.	Nov.	11.
15999	Projectiles for ordnance	John B. Read	Tuscaloosa, Ala	Oct.	28.
15454	Projectiles, hollow, moulds for	Ethan Allen	Worcester, Mass	July	29.
14460	Projectiles, percussion	John Lippincott	Pittsburg, Pa.	Mar.	18.
15529	Projectiles, throwing, machine for	A. B. Smith and Wm. Weaver	Clinton, Pa.	Aug.	12.
15425	Rifle shot, mode of patching	R. H. Isham	Greenwich, Conn	July	29.
14503	Shells, explosive	William W. Hubbell	Philadelphia, Pa.	ar.	

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees	Residence	Date of patent.
				1856.
15760	Shells, explosive	A. M. George	Nashua, N. H.	Sept. 23.
14133	Shells, explosive, eccentric	Wm. W. Hubbell	Philadelphia, Pa.	Jan. 22
15075	Shot and shell, sabot for rotating	Wm. W. Hubbell	Philadelphia, Pa.	June 10.
14151	Shot pouches	Joseph T. Capewell	Woodbury, Conn.	Jan. 29.
15651	Shot pouches, charges for	John M. Hathaway	New York, N. Y.	Sept. 2.

CLASS XX.—SURGICAL AND MEDICAL INSTRUMENTS, *including trusses, dental instruments, bathing apparatus, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15626	Cupping	Loyall Tillotson	Thompson, Ohio.	Aug. 26.
15568	Cupping instruments	Sherman McLean	Reynale's Basin, N. Y	Aug. 19.
14739	Emissions, nocturnal, rings to prevent	L. D. Sibley	Northampton, Mass.	April 22.
15215	Forceps, dental	Hazin J. Batchelder	West Fairlee, Vt.	July 1.
15730	Forceps, dentist's	John G. Coates	Big Lick, Va.	Sept. 16.
14085	Genital organs, apparatus for curing varicocele, sterility, impotency, and other diseases of the.	John Cheever	Boston, Mass	Jan. 15.
15372	Hands and arms, artificial	John S. Drake	Boston, Mass.	July 22.
15831	Legs, artificial	O. D. Wilcox	Easton, Pa.	Sept. 30.
14836	Legs, artificial, construction of	William Selpho	New York, N. Y.	May 6.
14293	Pessaries, construction of	F. Roesler	New York, N. Y	Feb. 19.
	Phrenology, apparatus for teaching. (See Class XXII.)			
14161	Pill-making machines	Noah W. Kumler	Cincinnati, Ohio.	Jan. 29.

15139	Teeth, artificial, adjustable punches for setting.	Samuel Mallett and Augustus B. Smith	New Haven, Conn	June 17.
14924	Teeth, artificial, devices for setting	Wm. G. Oliver and Thomas Harrison	Buffalo, N. Y	May 20.
15965	Tooth extractor	Hazen J. Batchelder	West Fairlee, Vt	Oct. 28.
15706	Tooth-plates by the electrotype process, casting artificial.	John L. Newell	Binghampton, N. Y	Sept. 9.
14440	Trusses, hernial	John Broiles	Madison, Ala	Mar. 18.
16292	Truss-pads	Sylvester I. Sherman	New York, N. Y	Dec. 23.
15858	Truss-pads, glass or earthen	Charles C. Reinhardt	Baltimore, Md	Oct. 7.
14993	Uterine supporters	William Alley	Columbus, Ga	June 3.
15897	Uterine supporters	William Provines	Columbia, Mo	Oct. 14.

CLASS XXI.—WEARING APPAREL, ARTICLES FOR THE TOILET, &c., *including instruments for manufacturing.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
15570	Bonnets and bonnet frames, machines for pressing.	William Osborn	Louisville, Ky	Aug. 19.
15671	Buckle for wearing apparel	William Slade	Gum Creek, Ga	Sept. 2.
15666	Buckle for wearing a parel	Edward Parker	Plymouth, Conn	Sept. 2.
14019	Collars, shirt	Walter Hunt	New York, N. Y	Jan. 1.
14308	Collars, shirt, machinery for making	Othniel W. Edson	Troy, N. Y	Feb. 26.
15634	Comb blanks, machine for sizing	William Fosket and Benj. S. Stedman, assignors to Julius Pratt & Co.	Meriden, Conn	Aug. 26.
16289	Shirts	S H. & J. Strouse	New York, N. Y	Dec. 23.
16050	Sleeve-fastener	John P. Derby	Cavendish, Vt	Nov. 11.
14756	Studs for wearing apparel	Lucius Paige, assignor to himself and Albert L. Lincoln.	Cavendish, Vt	April 22.
15824	Tailors' measures	Amos Stocker	Rome, N. Y	Sept. 30.
16106	Tailors' pressing machines	C. W. Williams	Boston, Mass	Nov. 18.
14431	Umbrella ribs, manufacturing	Charles C. Reed, assignor to Charles C. Reed, W. S. Reinert, and J. Schnell.	Philadelphia, Pa	Mar. 11.
16063	Umbrellas, preparing rattan for	James W. Martin	Philadelphia, Pa	Nov. 11.
14683	Wigs	Dewitt C. Warner	Wilkesbarre, Pa	April 15.
16140	Wristband fastener	John P. Derby	Boston, Mass	Dec. 2.

CLASS XXII—*Miscellaneous.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
14719	Annunciators, hotel	William H. Hale	Worcester, Mass.	April 22.
16116	Backgammon and checker-boards	Edwin O. Goodwin	Bristol, Conn.	Nov. 25.
14900	Bags, travelling, and mail pouches, frames for.	Samuel D. Quimby, assignor to Edward A. Locke.	Winchester, Mass.	April 2
15042	Barrels, &c , rolling and handling, apparatus for.	Servetus Longley	Cincinnati, Ohio	June
14964	Billiard cues	Conrad Leicht	New York, N. Y.	May 27.
14290	Billiard tab'e cushions	Michael Phelan	New York, N. Y.	Feb. 19.
15994	Billiard table cushions	William B. Carpenter	Brooklyn, N. Y.	Oct. 28.
	Blacking, stove. (See Class IV, letter B.)			
	Bottle castors. (See Class XVII, letter C.)			
15788	Bottles and other vessels made from plastic substances, tool for forming the grooves around the orifice of.	Amasa Stone	Philadelphia, Pa.	Sept. 23.
15098	Bottles, apparatus for cutting the strings that secure the corks in.	George Blanchard	New York, N. Y.	une 10.
14446	Bottles, corking, machines for	H. N. DeGraw	Piermont, N. Y.	18.
14255	Bottles, envelopes for	John Seithen	Coblenz, Prussia	Feb. 12. England Aug. 29, 1854.
15802	Bottles, hermetically sealing, mode of	Mills B. Espy	Philadelphia, Pa.	Sept. 30.
15514	Box, fruit	J. W. Hayes	Newark, N. J	Aug. 12.
14783	Box openers	Charles P. S. Wardwell	Lake Village, N. H.	April 29.
16017	Burglar's alarm	William McLachlan	New York, N. Y	Nov. 4.
16200	Cigars	William Palmer Surgey, assignor to Chas. Henry Stanley.	Hackney, Great Britain	Dec. 9. England Sept. 25, 1854.
14763	Cigar, machines	William Dawson	Huntington, Conn	April 29.
14732	Coal breakers	Thomas Petherick	Pottsville, Pa.	April 22.
16098	Cork, softening, by steam	Bennett Potter, jr	Charlestown, Mass.	Nov. 18.
14527	Creepers to prevent slipping on ice, &c.	William H. Towers	Philadelphia, Pa.	Mar. 25.
15294	Curry combs	A. A. and Andrew Hotchkiss	Sharon, Conn.	July 8.

15466	Fishing-rods, reel for	John A. Bailey, assignor to John Warrin	Jersey City, N. J	Aug. 5.
14706	Fishing tackle	Julio T. Buel	Whitehall, N. Y.	April 22.
15279	Hitching horses, clothes-lines, &c., apparatus for.	Edward S. Boynton	East Hartford, Conn.	July 8.
15337	Hogs, slaughtering, apparatus for	Thomas J. Godman	Madison, Ind	July 15.
16312	Horse fastening	James Bolton	Richmond, Va	Dec. 23.
	Horses, harness for shoeing. (See Class XVI, letter H.)			
15483	Ice, breaking, instrument for	Isaac H. Giffing	New York, N. Y	Aug. 5.
16152	Ice saw	S. Scotton	Richmond, Ind	Dec. 2.
15226	Labels, metallic hook for	Samuel B. Fay	New York, N. Y	July 1.
15883	Ladder, fireman's	Dominico Giambastiani	Washington D. C	Oct. 14.
	Lard rendering kettles. (See Class IV, letter L)			
15941	Mackerel, splitting, machine for	Sidney S. Turner, assignor to S. S. Turner and Elmer Townsend.	Lewiston, Me	Oct. 21.
15393	Match, friction, machine	Calvin D. Smith and Horace Patterson	Worcester, Mass	July 22.
14782	Matches, friction, machine for manufacturing	Alexander Underwood	Ilion, N. Y.	April 29.
15238	Match machine	Lawrence Holms	Paterson, N. J.	July 1.
	Milk, concentration of. (See Class IV, letter M.)			
14655	Mosquito nets, frames for	Samuel E. Hartwell	New York, N. Y.	April 15.
14910	Oracular wheel or centre table	William O. George	Richmond, Va	May 20.
16019	Packages, spring frame for	Henry B. Osgood	Dorchester, Mass	Nov. 4.
14685	Phrenology, apparatus for teaching	George P. Wilcox and William Butler	Little Falls, N. Y.	April 15.
14904	Pill machines	Henry E. Chapman	Albany, N. Y	May 20.
	Shearing sheep. (See Class I.)			
16231	Skate-runners	John E. Forbes	Hoboken, N. J	Dec. 16.
14586	Skates	Ferdinand Klein	Essex county, N. J.	April 1.
14624	Slate frame	Edwin Young	Philadelphia, Pa.	April 8.
15366	Sleigh bells to straps, mode of attaching	Abner G. Bevin	Chatham, Mass.	July 22.
14490	Sugar, loaf, machine for cutting	Adolph and Felix Brown	New York, N. Y.	Mar. 25.
14740	Tent, conical	Major H. H. Sibley	U. S. army	April 22.
15378	Trap, fly	Joseph Hyter	Kent, Ind.	July 22.
15464	Trap, fly	Samuel Arnold	Wilson county, Tenn	Aug. 5.
15752	Trap, fly	S. Arnold	Green Hill, Wilson co., Tenn.	Sept. 23.
15848	Trap, fly	George Gilbert	Westville, Conn.	Oct. 7.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
				1856.
16217	Trap for catching fish, &c	Levi Van Hoesen	Westville, Conn	Dec. 9.
14531	Trap, rat, self-setting	Samuel Beaumont	New York, N. Y	Mar. 25.
14336	Trap, roach	John Goodyear, jr., and Thomas I. Berry, assignors to John Goodyear, jr., Thomas I. Berry, and William M. Porter.	Philadelphia, Pa	Feb. 26.
14612	Whip handles, machine for tapering whale bone for.	L. Hull	Charlestown, Mass	April 8.
14669	Whip socket	William H. Lyman	Newark, N. J	April 15.

EXTENSIONS DURING THE YEAR 1856.

Inventions or discoveries.	Patentees.	Residence.	Date of extension	Date of patent.
			1856.	
Brick press, construction of the	Alfred Hall	Perth Amboy, N. J	Sept. 3	Sept. 3, 1842.
Door locks	John P. Sherwood	Fort Edward, N. Y	Dec. 15	Dec. 17, 1842; re-issued Oct. 7, 1856.
Engines, locomotive steam, manner of constructing, by which they adapt themselves to the curves and undulations of the road.	Matthias W. Baldwin	Philadelphia, Penn	Aug. 22	Aug. 25, 1842.
Felting for coats, hats, &c	Marmaduke Osborne	New York, N. Y	May 21	May 28, 1842.
Lamps for essential oils, &c	Michael B. Dyott	Philadelphia, Penn	May 28	May 30, 1842.
Metallic surfaces, particularly saw plates, machinery for grinding and polishing.	Richard M. Hoe	New York, N. Y	May 26	May 30, 1842.
Paper, ruling, machines for	George L. Wright	West Springfield, Mass	May 21	May 28, 1842.
Pins, shielded, for securing shawls, diapers, &c., manner of constructing.	Thomas Woodward	New York, N. Y	May 7	May 7, 1842.
Presses for pressing hay, cotton, &c., method of constructing.	S. W. Bullock	New York, N. Y	Mar. 21	March 23, 1842; re-issued Aug. 14, 1854.

Printing presses	Jeptha A. Wilkinson	[illegible]	Sept. 15	Jan. 4, 1853; England, Sept. 23, 1842.
Printing press, power, additional improvements in the.	Isaac Adams	Boston, Mass.	Aug. 18	March 2, 1836; re-issued June 13, 1848.
Printing press, power, printing machine called the	Isaac Adams	Boston, Mass.	Aug. 25	Oct. 4, 1830; extended Sept. 17, 1844.
Pumps and fire engines	B. T. Babbit, S. C. Higbee, and P. W. Plantz.	Little Falls, N. Y.	Oct. 7	Oct. 7, 1842.
Reaping machines	Jonathan Read	Alton, Ill.	Mar. 10	March 12, 1842.
Screws, wood, machine for cutting the threads of	Cullen Whipple, assignor to the New England Screw Company, assignors to Cullen Whipple.	Providence, R. I.	Aug. 16	Aug. 18, 1842; re-issue March 5, 1850; re-re-issue June 13, 1856.
Shoe pegs, machine for cutting	Stephen K. Baldwin	Gilford, N. H.	July 8	July 16, 1842.
Spark arrestors	William C. Grimes	Philadelphia, Penn.	Jan. 28	Feb. 12, 1842; re-issue Dec. 25, 1855.
Stoves, heating, construction of	Zephaniah Bosworth	Harmar, Ohio	Mar. 31	April 6, 1842.
Streets, sweeping and cleaning, machine for	Joseph Whitworth	Manchester, England	July 21	June 1, 1843; Eng'and, Aug. 2, 1842.
Threshing and winnowing grain, machines for	Andrew Ralston	West Middletown, Penn.	Feb. 18	Feb. 21, 1842; re-issue Feb. 15, 1856.
Vessels, steering apparatus for	Geo. W. & E. B. Rob'nson	Boston, Mass.	Sept. 25	Sept. 30, 1842.
Warps, dressing, manner of constructing brushes for	Samuel Taylor	Cambridge, Mass.	May 21	May 28, 1842.
Water-wheels	L. W. & G. W. Blake	Pepperell, Mass.	April 21	April 21, 1842.
Water-wheels	Reuben Rich	Salmon River, P. O., N. Y.	July 8	July 8, 1842.
Window-blind hinges and fastenings	William Baker	Utica, N. Y.	Sept. 8	Sept. 17, 1842.

DISCLAIMERS ENTERED DURING THE YEAR 1856.

Inventions or discoveries.	Patentees.	Residence.	Date of disclaimer.	Date of patent.
			1856.	
Lamps	Michael B Dyott	Philadelphia, Pa.	May 12	May 30, 1842.
Looms	John G. Melville and Wm. Brayshaw.	Wetheredville, Md	Jan. 21	April 24, 1855.

ADDITIONAL IMPROVEMENTS GRANTED DURING THE YEAR 1856.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Improvements added.
					1856.
143	Blinds, window, means for holding	Henry A. Frost	Worcester, Mass	Jan. 23, 1856	May 6.
151	Brick machines, rotary	George Crangle	Philadelphia, Pa	June 3, 1856	Sept. 9.
154	Brick machines, rotary	George Crangle	Philadelphia, Pa	June 3, 1856	Sept. 9; 2d additional improvement Nov. 25.
133	Candlesticks	Abner Whiteley	Springfield, Ohio	Jan. 10, 1856	Feb. 5.
144	Carriages, coupling for	Abram J. Gibson	Clinton, Mass	Sept. 12, 1854	May 27.
150	Carriage tops, raising and lowering, apparatus for.	Alanson Quigly	Sheldrake, N. Y	April 22, 1856	Aug. 26.
139	Cars, railroad, ventilating	George F. Foote	Buffalo, N. Y	July 11, 1854	April 8.
132	Cloth, ornamental felt, manufacture of	O. B. Tomlinson	Athens, Pa	June 5, 1855	Feb. 5.
134	Daguerreotype cases	John F. Mascher	Philadelphia, Pa	Mar. 8, 1853	Feb. 19.
136	Excavating machine	J. J. Savage	New York, N. Y	Jan. 8, 1856	Mar. 11.
142	Faucet	Moses Woodbury	Boston, Mass	Mar. 11, 1856	May 6.
153	Fenders for fire-places	John W. Truslow	Lewisburg, Va	July 15, 1856	Sept. 30.
152	Fire-arms	Frederick D. Newbury, assignor to Richard Varick DeWitt.	Albany, N. Y	Aug. 12, 1856	Sept. 16.
145	Fire-arms, breech-loading	Abner N. Newton	Richmond, Ind	June 27, 1854	June 17.
157	Fire-arms, breech-loading	Dr. Abner N. Newton	Richmond, Ind	June 27, 1854	Dec. 23.
138	Gas-burner	Charles H. Johnson	Boston, Mass	June 26, 1855	Mar. 18.
149	Gas-a ter	William F. Shaw	Boston, Mass	Jan. 23, 1855	July 22.
140	Harvesters, grain, binders for	George W. N. Yost	Pittsburg, Pa	Jan. 1, 1856	April 8.
141	Harvesters, grass	George Esterly	Heart Prairie, Wis	June 27, 1854	April 22.
155	Harvesting-machines	George Esterly	Heart Prairie, Wis	Oct. 22, 1844	Nov. 25.
156	Hubs for carriages	Joseph Smith	Delaware, Ohio	Feb. 19, 1856	Dec. 16.
131	Hydraulic heaters	L. W. Leeds and R. M. Smith	Philadelphia, Pa	May 16, 1854	Feb. 5.
147	Looms	James O. Leach	Ballston, N. Y	Oct. 30, 1855	July 8.
137	Mash-machines	Adolph Hammer	Philadelphia, Pa	Jan. 9, 1855	Mar. 18.
135	Mills, grinding	Amory Felton	Troy, N. Y	Jan. 2, 1855, reissue Jan. 29, 1856.	Feb. 26.

146	Vessels, war, protecting bulwarks for...	William Ballard.....	New York, N. Y.....	Nov. 1, 1853	July 1.

REISSUES DURING THE YEAR 1856.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Date of reissue.
					1856.
385	Apple parers.....	Charles P. Carter.....	Ware, Mass.....	Oct 16, 1849.....	Aug. 12.
395	Boats, life, folding.....	C. Locher.....	New York, N. Y.....	Jan. 2, 1855.....	Sept. 16.
392	Bomb-lance for killing whales.....	C. C. Brand.....	Norwich, Conn.....	June 22, 1852.....	Aug. 26.
404	Boring machine.....	A. Wyckoff and E. R. Morrison, assignors to A. Wyckoff.	Elmira, N. Y.....	Sept. 25, 1855.....	Oct. 14.
399	Buff for polishing spoons and other articles.	Luther Boardman.....	East Haddam, Conn....	Dec. 15, 1843.....	Oct. 7.
403	Cans, preserve, self-sealing.....	Robert Arthur.....	Philadelphia, Pa.....	Jan. 2, 1855; reissue June 10, 1856.	Oct. 14.
417	Carpets, manufacturing.....	John G McNair.....	Norwich, Conn.....	Aug. 7, 1855.....	Dec. 23.
353	Cars, &c., railroad ticket register for....	William Apperly.....	New York, N. Y.....	May 1, 1855.....	Feb. 19.
360	Cars, railroad.....	B. J. La Mothe.....	New York, N. Y.....	April 4, 1854.....	Mar. 18.
367	Cellars, wall and floors of, mode of constructing.	A. R. Moerr.....	New York, N. Y.....	Feb. 26, 1856.....	April 8.
364	Chain cables, arrangement of means for working and stoppering.	Thomas Brown.....	London, England.....	July 25, 1854; England, April 20, 1847.	Mar. 25.
412	Curry-combs.....	William Beach.....	Philadelphia, Pa.....	Mar. 13, 1849; reissue Feb. 12, 1850.	Dec. 9.
373	Furnace, annealing.....	J. Joseph Eagleton.....	New York, N. Y.....	May 20, 1856.....	June 24.
383	Furnaces, bagasse.....	Samuel H Gilman.....	New Orleans, La.....	Dec. 4, 1855.....	Aug. 5.
398	Furnaces for burning wet fuel.....	Moses Thompson.....	New Orleans, La.....	April 10, 1855.....	Oct. 7.
419	Gas-fittings, machine for reaming and tapping.	Henry A. Chapin.....	Springfield, Mass.....	July 1, 1856.....	Dec. 23.
407	Gas, heating by, apparatus for.....	William F. Shaw.....	Boston, Mass.....	Feb. 26, 1856.....	Oct. 28.
379	Gins, cotton.....	R. A. L. McCurdy, assignor to..... / David G. Olmstead.....	Sabine Parish, La..... / Vicksburg, Miss.....	June 26, 1855.....	July 15.
415	Gun, magazine, repeating and needle...	Edward Lindner.....	New York, N. Y.....	June 27, 1854.....	Dec. 23.

Reissues during the year 1856—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Date of reissue.
					1856.
416	Gun, magazine, repeating and needle (division).	Edward Lindner	New York, N. Y	June 27, 1854	Dec. 23.
358	Harvesters, grain and grass	Abner Whiteley	Springfield, Ohio	Feb. 5, 1856	Mar. 11.
376	Harvesters, grain and grass	Eliakim B. Forbush	Buffalo, N. Y	July 20, 1852	July 8.
341	Harvesters, grass, track clearers to	Abner Whiteley	Springfield, Ohio	Aug. 22, 1854	Jan. 8.
348	Harvesting machines	John Reily	Heart Prairie, Wis	Nov. 20, 1855	Jan. 29.
354	Harvesting machines	John H. Manny, assignor to P. H. Watson	Rockford, Ill Washington, D. C	Oct. 17, 1854; antedated June 15, 1854.	Feb. 19.
396	Hat-bodies, making, machinery for	Henry A. Wells, assignor to Charles St. John, H A. Burr, A. H. Wright, and James M. Riblet.	New York, N. Y	April 25, 1846	Sept. 30.
369	Hat-bodies, planking, machines for	Phineas Emmons, assignor to Albert Spencer and Alve E. Laing.	New York, N. Y	April 19, 1853	May 27.
400	Hat-bodies, manufacturing	Henry A. Wells, assignor to Charles St. John, H. A. Burr, A. H. Wright, and James M. Riblet.	New York, N. Y	April 25, 1846	Oct. 7.
406	Horse-power, reversible	P. H. Kells	Hudson, N. Y	July 8, 1856	Oct. 28.
374	Levels, spirit, mounting	S. I. Sherman	New York, N. Y	July 19, 1853	July 1.
401	Locks, door	John P. Sherwood, assignor to Calvin Adams, assignor to J. P. Sherwood.	Fort Edward, N. Y	Dec. 17, 1842; reissue May 13, 1851.	Oct. 7.
413	Marble sawing machines	Jose Toll	Locust Grove, Ohio	Sept. 9, 1856	Dec. 9.
359	Match splints, machinery for splitting.	L. S. Smith, assignor to B. Howard	New York, N. Y Brandon, Vt	Mar. 28, 1848	Mar. 11.
347	Mills, grinding	Amory Felton	Troy, N. Y	Jan. 2, 1855	Jan. 29.
372	Musical instruments, bellows for	Jeremiah Carhart	New York, N. Y	Dec. 28, 1846	June 24.
411	Nut machine	Robert Griffiths	Philadelphia, Pa	Oct. 30, 1855	Nov. 25.
361	Nuts, washers, &c., machines for making.	William Kenyon, assignor to Joseph P. Haigh, Andrew Hartupee, and John Morrow	Steubenville, Ohio Pittsburg, Pa	Oct. 14, 1851	Mar. 18.
340	Paper-stock, machines for washing	Horace W. Peaslee	Malden Ridge, N. Y	Jan. 23, 1855; England, Sept. 20, 1854.	Jan. 8.
380	Pens, gold	Adam W. Rapp	Philadelphia, Pa	Jan. 6, 1852	July 22.

368	*Photographic impressions, preparation of oil ground to receive.*	*Joel H. Tatum*	*Baltimore, Md.*	*April 15, 1856*	*May 13.*
384	*Photographic pictures on glass*	James A. Cutting	Boston, Mass	July 11, 1854	Aug. 12.
405	Piano-forte action	Daniel H. Shirley	Boston, Mass	Nov. 28, 1854	Oct. 21.
418	Plane, moulding, multiform	Thomas D. Worrall, assignor to M. Paul, assignor to Thomas D. Worrall, *alias* Thomas Worrall.	Mount Holly, N. J.	Aug. 29, 1854	Dec. 23.
337	Ploughs	Samuel Hulbert	Ogdensburg, N. Y.	Sept. 20, 1853; Canada, Sept. 20, 1852.	Jan. 1.
350	Polishing stone, metals, &c	Albert Broughton	Malone, N. Y	Nov. 7, 1854; antedated Oct. 24, 1854.	Feb. 12.
370	Preserve cans, self-sealing	Robert Arthur	Philadelphia, Pa.	Jan. 2, 1855	June 10.
338	Presses, cotton	Nathan Chapman	Mystic River, Conn	Aug. 8, 1854	Jan. 8.
366	Printing presses	George P. Gordon	New York, N. Y.	Aug. 5, 1851	April 8.
397	Pumps, rotary	John Broughton	Chicago, Ill	June 10, 1856	Sept. 30.
386	Railroad chairs, wrought-iron, machine for making	William Van Anden, assignor to William Bushnell, assignor to the American Railroad Chair Manufacturing Company, assignors to A. Friar, J. Rowe, and W. Van Anden	New York, N. Y / Poughkeepsie, N. Y	April 30, 1850	Aug. 12.
381	Raking and loading hay, machine for	Joseph Smith	Condit, Ohio	June 3, 1856	July 22.
387	Reaping machines (Division A)	Jonathan Read	Alton, Ill	Mar. 12, 1842; extended Mar. 12, 1856.	Aug. 19.
388	Reaping machines (Division B)	Jonathan Read	Alton, Ill	Mar. 12, 1842; extended Mar. 12, 1856.	Aug. 19.
389	Reaping machines (Division C)	Jonathan Read	Alton, Ill	Mar. 12, 1842; extended Mar. 12, 1856.	Aug. 19.
390	Reaping machines (Division D)	Jonathan Read	Alton, Ill	Mar. 12, 1842; extended Mar. 12, 1856.	Aug. 19.
391	Reaping machines (Division E)	Jonathan Reed	Alton, Ill	Mar. 12, 1842; extended Mar. 12, 1856.	Aug. 19.
394	Saddles, harness	John T. Denniston	Lyons, N. Y.	Nov. 20, 1846	Sept. 9.
408	Saddles, harness	A. H. Gazlay, assignor to O. B. North & Co.	Saratoga Springs, N. Y.	Mar. 14, 1848	Oct. 28.
365	Sawing machine	Wm. P. Wood, assignor to W. P. Wood and John S. Gallaher, jr., and John S. Gallaher, jr., assignor to W. P. Wood.	Washington, D. C.	Feb. 26, 1856	Mar. 25.
393	Saws, reciprocating, method of hanging and straining.	I N. Forrester	Centreville, Va	Oct. 30, 1855	Sept. 2.
371	Screws, wood, machine for cutting the threads of.	Cullen Whipple	Providence, R. I.	Aug. 18, 1842; reissue Mar. 5, 1850.	June 13.

Reissues for the year 1856—Continued.

	Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Date of reissue.
					1856.
378	Seine-needles, machinery for filling.....	H. M. Glines, assignor to John M. Stanton and Simon F. Stanton, assignors to P. Bennett, J. Kendrick, and L. A. Cook.	Providence, R. I.....	Oct. 2, 1855.....	July 15.
343	Sewing machines	Thomas J. W. Robertson, assignor to self and A. E. Beach.	New York, N. Y	Mar. 20, 1855.....	Jan. 15.
345	Sewing machines	Allen B. Wilson.....	Waterbury, Conn.....	Nov. 12, 1850.....	Jan. 15.
346	Sewing machines, (division)	Allen B. Wilson.....	Waterbury, Conn.....	Nov. 12, 1850.....	Jan. 15.
355	Sewing machines	William H. Johnson.....	Granville, Mass	Mar. 7, 1854.....	Feb. 26.
363	Sewing machines	Sidney S. Turner, assignor to ..... Elmer Townsend	Boston, Mass..... Westborough, Mass...	Aug. 22, 1854.....	Mar. 25.
410	Sewing machines	A. Swingle, assignor to E. Townsend	Boston, Mass.....	July 2?, 1856.....	Nov. 4.
414	Sewing machines	A. B. Wilson.....	Pittsfield, Mass.....	Nov. 12, 1850; reissue Jan. 22, 1856.	Dec. 9.
352	Sewing or stitching straight seams, machines for.	J. J. Greenough, assignor to J. M. Singer and Edward Clark.	New York, N. Y.....	Feb. 21, 1842.....	Feb. 12.
409	Shoe-pegs, machine for cutting.....	Stephen K. Baldwin.....	Gilford, N. H.....	July 16, 1842; extended July 8, 1856.	Nov. 4.
344	Silica, apparatus for dissolving.....	Benjamin Hardinge.....	New York, N. Y.....	May 8, 1855.....	Jan. 22.
377	Sowing machine.....	P. Seymour.....	East Bloomfield, N. Y...	May 7, 1855.....	July 15.
351	Spike machine	A. M. George.....	Nashua, N. H.....	Dec. 18, 1855.....	Feb. 12.
356	Spark and gas consumers.....	David Matthew.....	Philadelphia, Penn.....	Feb. 20, 1849; reissue, Oct. 4, 1843.	Feb. 26.
357	Spark arresters.....	David Matthew.....	Philadelphia, Penn.....	Dec. 31, 1840; extended, Dec. 27, 1854.	Mar. 4.
402	Stone, artificial.....	St. Julien Ravenal.....	Charleston, S. C.....	Aug. 12, 1856.....	Oct. 14.
342	Threshing and winnowing grain, machines for.	Andrew Ralston.....	Middletown, Penn.....	Feb. 21, 1842.....	Jan. 15.
349	Tonguing and grooving machines.....	Charles W. Brown.....	Boston, Mass	Aug. 14, 1844.....	Feb. 5.
339	Types, composing and setting, machine for.	W. S. Loughborough.....	Rochester, N. Y.....	Oct. 23, 1855.....	Jan. 8.
389	Valves, operating, in direct acting steam-	Wm. H. Guild and Wm. F. Garrison....	Brooklyn, N. Y.....	Mar. 27, 1855.....	July 29.

375	Watches, securing pinions, &c., of, in lathes.	James M. Bottum	New York, N. Y.	July 15, 1851	July 8.
362	Web for cloth of wool, hair or other suitable substance, machine for forming the, without spinning or weaving.	John Arnold, deceased, legal representatives of, assignors to Union Manufacturing Company.	Norwalk, Conn	July 15, 1829; extended by Congress 14 years from Mar. 28, 1854.	Mar. 18.

PATENTS FOR DESIGNS GRANTED DURING THE YEAR 1856.

No.	Designs.	Patentees.	Residence.	Date of patent.
				1856.
858	Bedsteads, metallic	John B. Wickersham	New York, N. Y.	Dec. 23.
763	Bottle casters and egg-cup stands	R. Gleason, jr., assignor to R. Gleason & Sons.	Dorchester, Mass	Feb. 12.
755	Bottles, perfumery	Augustus F. Wetherill	Cincinnati, Ohio	Jan. 8.
761	Bricks, moulded	James M. Thompson	Philadelphia, Penn	Feb. 12.
838	Bust of J. C. Fremont	John Gott	Albany, N. Y	Oct. 7.
784	Casters	William H. Green	Meriden, Conn	April 22.
777	Chandeliers	Samuel B. H. Vance, assignor to Mitchell, Bailey, & Co.	New York, N. Y.	April 8.
778	Chandeliers	Samuel B. H. Vance, assignor to Mitchell, Bailey, & Co.	New York, N. Y.	April 8.
771	Clock-case fronts	Nicholas Muller	New York, N. Y.	April 1.
787	Clock-case fronts, A	Nicholas Muller	New York, N. Y.	April 29.
787	Clock-case fronts, B	Nicholas Muller	New York, N. Y.	April 29.
813	Clock-case fronts, No. 2	Nicholas Muller	New York, N. Y.	July 1.
812	Clock-case fronts, base of, No. 1	Nicholas Muller	New York, N. Y.	July 1.
818	Clock fronts	J. and R Shepherd	New York, N. Y.	July 29.
820	Drawer-pulls	P. and E. W. and J. A. Blake	New Haven, Conn	Aug. 5.
831	Floor cloths (No. 1)	A. Glominski, assignor to D., A. E., and N. B. Powers.	Lansingburg, N. Y.	Sept. 16.
832	Floor cloths (No. 2)	A. Glominski, assignor to D., A. E., and N. B. Powers.	Lansingburg, N. Y.	Sept. 16.
859	Floor cloths	A. Glominski, assignor to D., A E., and N. B. Powers.	Lansingburg, N. Y.	Dec. 23.
769	Forks and spoons, handles of	Theodore Evans	New York, N. Y.	Mar. 4.
757	Furnaces, portable	G. Smith, H. Brown, and J. A. Read, assignors to A. E. Warfield.	Philadelphia, Pa.	Jan. 15; antedated Dec. 31, 1855.

Designs for 1856—Continued.

No.	Designs.	Patentees.	Residence.	Date of patent.
				1856.
753	Furnace, summer	Jacob Beesley, assignor to Cresson, Stuart & Peterson.	Philadelphia, Pa.	April 15.
759	Gates	Herman E Wesche, assignor to Robert Wood.	Philadelphia, Pa.	Feb. 5.
762	Gates	Herman E. Wesche, assignor to Robert Wood.	Philadelphia, Pa.	Feb. 12.
814	Grate, ornamental, for fire-places	John C. Macy	Cincinnati, Ohio	July 8.
855	Grates, parlor	John T. Davy	Troy, N. Y.	Dec. 23.
796	Match safes, paper weights and pincushions combined.	Michael B. Dyott	Philadelphia, Pa.	May 27.
792	Oven and stove doors	Joseph A. Read, assignor to John H. Cahill.	Philadelphia, Pa.	May 13.
782	Oven, gas	Edward J. Delaney, assignor to Cresson, Stuart & Peterson.	Philadelphia, Pa.	April 15.
815	Ovens, parlor	Russell Wheeler and Stephen A. Bailey	Utica, N. Y.	July 8.
753	Pendants, hall	S. B. H. Vance, assignor to Mitchell, Bailey & Co	New York, N. Y. Connecticut	Jan. 1.
754	Pendants or chandeliers, hall	Samuel B. H. Vance, assignor to Mitchell, Bailey & Co	New York, N. Y. Connecticut	Jan. 1.
780	Pen, steel	Albert Granger	New York, N. Y.	April 15.
788	Piano forte legs	Isaac Engel	Boston, Mass.	May 13.
798	Piano forte legs	Albert Bosworth, assignor to Albert Bosworth and Timothy H. Loomis.	Whitfield, Mass	May 27.
760	Printing type	L. Johnson	Philadelphia, Pa.	Feb. 12.
851	Printing types	George Bruce	New York, N. Y.	Dec. 2.
758	Ranges, portable	G. Smith, H. Brown, and J. A. Read, assignors to A. E. Warfield.	Philadelphia, Pa.	Jan. 15; antedated Dec. 31, 1855.
797	Ranges, portable	James Horton and John Carrie, assignors to Cox, Hagar & Cox.	Philadelphia, Pa.	May 27.
847	Statuettes of Burton as Captain Cuttle	Charles Müller	New York, N. Y.	Oct. 21.
816	Stove, box, plate	Winslow Ames	Nashua, N. H.	July 15.
765	Stove plates	Sanford Burnam, assignor to Cox, Warren, Morrison, & Co.	Troy, N. Y	Feb. 12.

785	*Stove plates*	Harvey Smith and Frederick A. Sheldon	Troy, N. Y	April 22.	
821	*Stove plates*	N. S. Vedder, assignor to G. F. Filley	Troy, N. Y	Aug. 5.	
842	Stove plates, cooking	N. S. Vedder, assignor to Mann, Torrance, & Co.	Troy, N. Y	Oct. 7.	
793	Stoves	Samuel W. Gibbs, assignor to W. & J. Treadwell and Perry & Norton.	Albany, N. Y	May 20.	
805	Stoves	G. Smith, H. Brown, and Joseph A. Read, assignors to A. G. Abbott and A. Lawrence.	Philadelphia, Pa	June 17.	
806	Stoves	Samuel W. Gibbs, assignor to Treadwell, Perry & Norton.	Albany, N. Y	June 17.	
801	Stoves	Isaac Diller	Lancaster, Pa	June 17.	
809	Stoves	Samuel F. Pratt, assignor to W. & J. Treadwell, Perry & Norton.	Boston, Mass	June 24.	
810	Stoves	N. S. Vedder and William L. Sanderson, assignors to North, Chase & North.	Troy, N. Y	June 24.	
808	Stoves	S. W. Gibbs, assignor to / North, Chase & North	Albany, N. Y / Philadelphia, Pa	June 24.	
830	Stoves	G. Smith, H. Brown, and J. A. Read, assignors to Cox, Hagar & Cox.	Philadelphia, Pa	Sept. 16.	
840	Stoves	S. W. Gibbs, assignor to North, Chase & North.	New York, N. Y	Oct. 7.	
839	Stoves	N. S. Vedder and William L. Sanderson, assignors to North, Chase & North.	Troy, N. Y	Oct. 7.	
844	Stoves	G. Smith, H. Brown, and J. A. Read, assignors to Hayward, Bartlett & Co.	Philadelphia, Pa	Oct. 7.	
845	Stoves	Hudson E. Bridge	St. Louis, Mo	Oct. 14.	
848	Stoves	James J. Dulley, assignor to Fuller, Warren & Morrison.	Troy, N. Y	Nov. 4.	
803	Stoves, airtight	Garretson Smith and Henry Brown, assignors to A. G. Abbott and A. Lawrence.	Philadelphia, Pa	June 17.	
836	Stoves, coal, cylindrical	Russell Wheeler and Stephen A. Bailey	Utica, N. Y	Oct. 7.	
756	Stoves, cooking	G. Smith, H. Brown, and J. A. Read, assignors to J. G. Abbott and A. Lawrence.	Philadelphia, Pa	Jan. 15.	Antedated Dec. 31, 1855.
764	Stoves, cooking	Saml Pierce and J J. Dulley, assignors to Cox, Morrison, Warren & Co.	Troy, N. Y	Feb. 12.	
766	Stoves, cooking	Saml. Pierce and Sandford Burnam, assignors to Cox, Warren, Morrison & Co.	Troy, N. Y	Feb. 12.	
775	Stoves, cooking	Samuel H. Ransom	Albany, N. Y	April 1.	
781	Stoves, cooking	Samuel H. Ransom	Albany, N. Y	April 15.	

Designs for 1856—Continued.

No.	Designs.	Patentees.	Residence.	Date of patent.
				1856.
789	Stoves, cooking	Anthony J. Gallagher	Philadelphia, Pa.	May 13.
795	Stoves, cooking	Thomas A. Herrick, assignor to Lemuel M. Leonard.	East Bridgewater, Mass.	May 20.
799	Stoves, cooking (A)	William Resor	Cincinnati, Ohio.	June 3.
800	Stoves, cooking (B)	William Resor	Cincinnati, Ohio.	June 3.
807	Stoves, cooking	John F. Allen, assignor to Stratton and Massey.	Philadelphia, Pa.	June 17.
802	Stoves, cooking	G. Smith, H. Brown, and Jos. A. Read, assignors to A. G. Abbott and A. Lawrence.	Philadelphia, Pa.	June 17.
811	Stoves, cooking	Garretson Smith, Henry Brown, and Jos. A. Read, assignors to Leibrant, McDowell, & Co.	Philadelphia, Pa.	June 24.
817	Stoves, cooking	Joseph Hackett	Louisville, Ky.	July 29.
819	Stoves, cooking	Benj. Wardwell and Ephraim R. Barstow.	Fall River, Mass.	July 29.
823	Stoves, cooking	Saml. Pierce and J. J. Dulley, assignors to Fuller, Warren, and Morrison	Troy, N. Y.	Aug. 5.
825	Stoves, cooking	N. S. Vedder and Ezra Ripley, assignors to Cox, Richardson, and Boynton.	Troy, N. Y.	Aug. 19.
824	Stoves, cooking	N. S. Vedder, assignor to Cox, Richardson, and Boynton	Troy, N. Y.	Aug. 19.
828	Stoves, cooking	N. S. Vedder and W. L. Sanderson, assignors to Swetland and Little.	Troy, N. Y.	Aug. 26.
829	Stoves, cooking	N. S. Vedder and W. L. Sanderson, assignors to Swetland and Little.	Troy, N. Y.	Aug. 26.
835	Stoves, cooking	Daniel Wilson	Nashua, N. H.	Oct. 7.
843	Stoves, cooking	N. S. Vedder, assignor to Graff, Reisinger & Graff.	Troy, N. Y.	Oct. 7.
837	Stoves, cooking	Hudson E. Bridge	St. Louis, Mo	Oct. 7.
852	Stoves, cooking	Samuel W. Gibbs, assignor to A. H. McArthur & Co.	Albany, N. Y	Dec. 9.
853	Stoves, cooking	S. W. Gibbs, assignor to G. W. Ball & Co.	Albany, N. Y	Dec. 23.

791	Stoves, cooking, for the plates of	W. L. Sanderson and N. S. Vedder, assignors to Sanders, Wolfe, & Warren.	Troy, N. Y	May 13.
857	Stoves, cooking, parlor	John T. Davy	Troy, N. Y	Dec. 23.
846	Stoves, cook's	N. S. Vedder and W. L. Sanderson, assignors to G. W. Eddy.	Troy, N. Y	Oct. 21.
770	Stoves, elevated oven	Samuel W. Gibbs, assignor to W. & J. Treadwell, Perry & Norton.	Albany, N. Y	Mar. 18.
850	Stoves, kitchen	S. W. Gibbs, assignor to Wood, Roberts & Co.	Albany, N. Y	Nov. 25.
804	Stoves, nine-plate	G. Smith, H. Brown, and J. A. Read, assignors to A. G. Abbott and A. Lawrence.	Philadelphia, Pa	June 17.
834	Stoves, oven	Samuel F. Pratt, assignor to Treadwell, Perry & Norton.	Boston, Mass	Sept. 23.
767	Stoves, parlor	William T. Coggeshall	Fall River, Mass	Feb. 19.
768	Stoves, parlor	Samuel D. Vose	Albany, N. Y	Mar. 4.
772	Stoves, parlor	Samuel H. Ransom	Albany, N. Y	April 1.
779	Stoves, parlor	N. S. Vedder and William L. Sanderson, assignors to Sanders, Wolfe, & Warren.	Troy, N. Y	April 8.
790	Stoves, parlor	N. S. Vedder and William L. Sanderson, assignors to N. S. Vedder.	Troy, N. Y	May 13.
794	Stoves, parlor	David Hathaway, assignor to Cox, Richardson, & Boynton.	New York, N. Y	May 2.
822	Stoves, parlor	Samuel Pierce and J. J. Dulley, assignors to Fuller, Warren & Morrison.	Troy, N. Y	Aug. 5.
826	Stoves, parlor	David Hathaway, assignor to Cox, Richardson, and Boynton.	Troy, N. Y	Aug. 19.
833	Stoves, parlor	Samuel F. Pratt, assignor to Treadwell, Perry, & Norton.	Boston, Mass	Sept. 23.
841	Stoves, parlor	J. Beesley and E. J. Delaney, assignors to Cresson, Stuart, and Peterson.	Philadelphia, Pa	Oct. 7.
849	Stoves, parlor	Elihu Smith	Albany, N. Y	Nov. 11.
773	Stoves, six-plate	Samuel H. Ransom	Albany, N. Y	April 1.
827	Stoves, six-plate	N. S. Vedder and E. Ripley, assignors to Swetland & Little.	Troy, N. Y	Aug. 26.

DESCRIPTIONS AND CLAIMS OF PATENTS,

ISSUED IN THE YEAR 1856.

ILLUSTRATED BY ENGRAVINGS.

[To find the Plates, see Index at the end of Vol. II.]

I.—AGRICULTURE.

No. 14,051.—GEORGE H. CLARKE.—*Improvement in Bee-Hives.*—Patented January 8, 1856.

The nature of this invention consists in the application of three or more open-sided hollow bars or tubes D, inserted in the bee-hive for the purpose of affording, at all times, a safe and easy mode of intercommunication between all the combs in the hive, and also for better supporting the combs.

The inventor says: Disclaiming the other devices, described individually or combined, what I *claim* is, the construction and arrangement of the hollow bars D, in the manner and for the purposes set forth.

No. 14,168.—H. G. ROBERTSON.—*Improvement in Bee-Hives.*—Patented January 29, 1856.

All the joints of this bee-hive have grooves Z formed in them to receive caustic lime, which is tightly packed therein. The object of this same is to destroy the larvæ hatched from eggs laid in the joints, or which seek to enter the hive thereat.

The inventor says: I do not claim lime as a material for packing the joints of my hive, but merely indicate it as the most suitable for that purpose, among several materials offensive to insects which I know of that could be used with more or less advantage. I *claim* making the joints hollow, and stuffing them with caustic lime or other matter offensive to insects, in the manner and for the purpose specified.

No. 15,457.—J. S. BROWN, assignor to JOSEPH KENT.—*Improvement in Bee-Hives.*—Patented July 29, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The peculiar construction of the drawer E, and its arrangement in combination with the basement D and the bottom M of the

hive, substantially as herein set forth, so as to be reversible in positio and to serve the several purposes of controllable ventilator, filth rece tacle, with moth-trap and feeding chamber, in the manner specified.

No. 15,894.—CHARLES PAWLING.—*Improvement in Bee-Hives.*—Patent October 14, 1856.

The nature of this invention consists in providing the front part the bee-palace with three boxes E F G placed in the front part of t palace, without having any connexion with the interior, for the rece tion of moths, the bees entering the palace through the openings H, a the moths through the openings F.

Claim.—The arrangement of the bee entrances H H, with t moth entrances *f f f*, and moth receptacles E F G P, when located set forth and described, and for the purpose stated.

No. 15,436.—WASHINGTON F. PAGETT.—*Improvement in Machines Binding Grain &c.*—Patented July 29, 1856.

In using this apparatus, the outer hook *b*, of band G, is attached the forward end of the conductor D, which is driven forward b pinion meshing in the racks B; the other end of the band G is hool oa to the way A, in front of the slide J, which is now withdrav The conductor D is now run under the sheaf. and the hook remo from it, and attached to the end of the way A, as represented in dot lines. The motion of the apparatus is now reversed, and the rack slides the ring *a* off the end of the way A, when it grapples the ot hook; the sheaf is thus compressed and securely bound, and the b disengaged from the machine.

Claim.—The way A, in combination with the slide J, or its equi lent, when operating in the manner and for the purposes described.

2d. I claim the band G, in combination with the way A a slide J, for the purposes described.

No. 14,530.—JAMES H. BENNETT.—*Improved Butter-Worker.*—Paten March 25, 1856.

The bowl B is rotated, and the spatula I is placed against the H, which latter is fitted to the frame A, directly over the centre of bowl. The butter will thus be spread out in a thin sheet around sides of the bowl.

Claim.—The rotating bowl B, in combination with the horizo bar H and spatula J, when arranged and operated for the purp herein specified.

No. 15,350.—HIRAM TARBOX, 2d.—*Improved Cattle Stall.*—Patented July 15, 1856.

The nature of this invention consists in having an excrement apron B, attached and supported by means of cords *b* and *d* behind the animal, said cords running over friction rollers. When it is desired to remove the excrements, the cord *d* is raised, and thus the apron C is caused to assume a vertical position.

Claim.—Having attached or supported an apron or its equivalent, whereby the excrement is prevented from dirtying the animal, and also protecting litter or bed.

No. 14,309.—JOHN U. FIESTER.—*Improvement in Churns.*—Patented February 26, 1856.

The agitator J is composed of three pieces, two of which are hung on a pin to the center-piece. As the agitator revolves, the cams *b*, acted upon by the eccentric circular recess *e*, cause the two pieces of the agitator to swing laterally, so as to alternately check and allow the flow of the current of the cream through holes *a*, in each of the three pieces of the agitator, which holes are in one line (so as to allow the cream to flow through) only in one position of the pieces during each of the lateral vibrations.

Claim.—The cams *b* and eccentric circle *e*, in combination with the agitator J, for the purpose of breaking or cutting the current of cream in its passage through them, and for producing friction by the lateral motion of the two sides of the agitator, as herein described, and for the purposes set forth.

No. 14,458.—LUCIUS LEAVENWORTH.—*Improvement in Churns.*—Patented March 18, 1856.

By moving the lever G with a reciprocating motion, the cords attached to the arc of the lever will alternately wind and unwind on the pulley F, causing it to revolve in the direction of the lever, thus causing the cords E E to move the staff B with a reciprocating motion, and, by having cords wound on the staff, imparting to it, as they alternately wind and unwind, a rotary motion.

Claim.—The arrangement of the cords or bands attached to the pulley, and also to the staff, being wound on the staff to give a required rotary motion, as described in the specification.

No. 14,677.—WILLIAM NEWBROUGH.—*Improvement in Churns.*—Patented April 15, 1856.

The diagonal separator B is formed with openings *a*, and rests on the bearings c^1; obliquely under the box A, are secured the rockers *d d*. The churn is rocked by means of shaft *f* and the elastic handle H,

whereby a violent agitation of the cream through the separator is produced.

Claim.—The combination of the oblique-bulged rockers with the diagonal separator, for producing a violent agitation of the cream.

No. 15,412.—WILLIAM H. BURNHAM and B. HIBBARD.—*Improvement in Churns.*—Patented July 29, 1856.

The nature of this improvement consists in the peculiar construction of the churn-dasher, which is composed of two independent frames: one consisting of the slats *d* and connecting side slats *e;* the other of the slats *e* and *f;* all attached to the shaft *b*, and arranged as represented in the engraving.

Claim.—The improved churn-dasher, composed of two independent frames, combined with each other and with the operating lever, substantially in the manner set forth.

No. 15,661.—LOOMIS LAMB.—*Improvement in Churns.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim and engraving.

The inventor says: I do not claim employing in a tub two concentric shafts separately, provided with one or more dashers to revolve with them. But I *claim* applying the auxiliary dasher E to the shaft of the rotary dasher D, without any other shaft, so that the shaft of the rotary dasher may revolve on the hub of the auxiliary dasher, in combination with applying to the inside surface of the tub a stop or projection G, or equivalent means, arranged as described, and by which the auxiliary dasher may be stopped from revolving with the other dasher, when both are placed in the cistern, and the churn is in operation, as described.

No. 15,741.—ALBERT PEASE.—*Improvement in Churns.*—Patented September 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The combination of the two fixed boards *c* and *b* on the dasher handle, and a sliding board *d*, or its equivalent, moving between them, substantially as described; disclaiming the use of two fixed boards, except in the combination herein specified.

No. 15,787.—FRANKLIN THORPE.—*Improvement in Churns.*—Patented September 23, 1856.

When it is desired to churn, the crank *g* being turned to the right, the action of the scolloped buckets K squirts or projects the milk

forcibly against the head of the tub in the direction of the arrow. This action constantly breaks the vertical motion, and produces a series of rapid concussions of the liquid against the ends of the tub, which result in a speedy formation of butter. This being accomplished, a backward rotation instantly brings the loose bucket in line with the other, as represented in fig. 3, so as to present two rounded edges adapted for gathering the butter by rolling it against the sides, bottom, and top of the tub.

Claim.—The described arrangement and combination of the fast and loose buckets—the latter being slackened from the former in the act of opening, and tightening to it in the act of closing, by the screw upon the spindle, or equivalent devices, for the purposes explained.

No. 16,203.—WILLIAM A. VERTREES.—*Improvement in Churns.*—Patented December 9, 1856.

The air tube T extends from near the top of churn A nearly to the bottom, where it is bent into a horizontal position. The lower end of the tube is provided with a double-acting valve V; the outward wing of which presses against the fluid, while the other end extends inward and closes one side of the tube to prevent the cream from entering the tube, while the valve is open to let the air pass behind the valve, as the shaft S is revolved back and forward.

Claim.—The air tube with its double-acting valve, arranged in the manner and for the purposes set forth.

No. 16,193.—CHARLES A. SHAW.—*Improvement in Churns.*—Patented December 9, 1856.

As the swinging frame D, to which the churn A is attached, is caused to vibrate on its fulcrum *a* by applying power to the handle L, the toothed sector K causes to oscillate pinion I and shaft H. By this arrangement, a rising and descending motion is imparted to pitman F, gate D, and dasher E; during which motion the dasher E is oscillated as the screw-thread *f* on its periphery I plays in the corresponding screw nut *h*.

The inventor says: I do not claim combining with the dasher and pendulous frame a mechanism by which and the pendulous frame, the dasher will have a rotary motion on its axis when the pendulous frame is put in motion.

Nor do I claim, separate from the same, combining with the dasher and the pendulous frame a mechanism by which and the pendulous frame such dasher will have imparted to it upward and downward motions when the pendulous frame is set in motion.

I *claim* combining with the pendulous frame, and the mechanism connected therewith, for imparting to the dasher up and down motions, a mechanism which, at the same time, will rotate the dasher on its axis—the dasher thus having at one and the same time a compound

movement, consisting of one in line of its axis, and one of rotation on its axis, whereby the operation of churning is greatly improved and facilitated.

No. 16,210.—GOODRICH LIGHTFOOT.—*Improvement in Churns.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The adjustable floats or buckets *b c*, attached to the annular plate H, which is secured to the shaft B; the above parts being arranged, as shown, for the purpose specified.

No. 15,743.—EDWIN A. PALMER.—*Improved Clevis.*—Patented September 16, 1856.

By putting the pin B, with the arms E, down through the openings F in the projection L, and turning it one-fourth round, the spring A will press the pin and arms back into the recesses I; the spring will keep the arms in these places and prevent the pin from turning, and thus obviate the friction. This arrangement avoids the use of a screw on the pin, or a key to keep the pin in its place.

The inventor says: I do not claim any part of the common clevis; but I *claim* the pin provided with a spring, and arms E E, in combination with the projection in the head, and openings through which the arms may pass, and the recesses I I, arranged substantially as and for the purposes set forth.

No. 14,816.—MATHEW S. KAHLE.—*Improvement in Machines for Saving Clover Seed.*—Patented May 6, 1856.

The rake D catches the heads of clover as the machine moves forward, and the revolving blades C C C C cut them off. The cloth E E carries the clover heads up, and empties them between the rubber H and the seive I I, where they are broken by the projecting spikes on rubber H.

The seed and light pod are prevented from falling between the rubber M and fans S by the shelving board U, and pass down between the rubber M and the concave board V V. Here they are again rubbed, and pass out at W, where the wind of the fan-wheel blows away the chaff, and the seed falls through the seive *x x* into the drawer *y y*.

Claim.—In combination with a gathering and conveying apparatus, such as described, the rubber and meshed wire concave I I, for separating and throwing out the grass, leaves, weeds, and other impurities, from the heads, pods, &c., and passing the latter to the threshing cylinder, and concave, and blast, and screen underneath them.

o. 14,596.—GEORGE E. BURT.—*Improved Machine for Combing Seed off Broom-Corn.*—Patented April 8, 1856.

Having laid the substance to be combed upon the belts E E E E, motion is communicated to them by the pulley S. The pinion M, on crank-shaft R, gives motion to the wheel B, which imparts motion to the cylinder C by means of gear N, shaft O, pulley P, and belt *e e*. The broom-corn, being forced upon the teeth of the wheel by the rolls G G, is brought under the bar D, which beats it down parallel with the plane of the wheel, and brings it in contact with the comb cylinder C C; thus stripping the seed entirely off without injury to the fibre, and delivering it by the fingers J J and spur roll K in an even and regular manner. The plate L serves to clear the corn from the roll by means of its projections, which enter the grooves *c c c c* in the roll.

The inventor says: I do not claim setting teeth spirally on cylinders; neither do I claim an endless bearded belt constructed of any proper material, having lugs or spikes, in combination with comb rollers, set diagonally upon a frame, as employed by Lorenzo D. Grosvenor, patented September 23, 1851 but I *claim* the combination of the wheel B, or its equivalent, (such as a rim or circle,) having one or more rows of teeth in its periphery, with one or more cylinders C placed parallel, or nearly so, with the plane of the wheel B. I also *claim* the bar D, arranged in the manner and for the purposes set forth. I also *claim* the spur roller R, in combination with the plate L, substantially as described.

No. 14,374.—JEREMIAH P. SMITH.—*Improvement in Corn-Shellers.*—Patented March 4, 1856.

The teeth *b b* of the breast-beam D project into the grooves *c c c* of the cylinder A, so that the cobs may not get around the ends of said teeth, and thereby be broken. The corn is thrown into the hopper B, and an elastic bar C is employed to keep the ears close to the shelling cylinder.

Claim.—Grooving the shelling cylinder around its periphery, and extending the teeth of the breast-beam therein, in combination with the arrangement for adjusting said breast-beam to different degrees of inclination to suit the different condition of corn to be shelled, substantially in the manner and for the purposes herein set forth.

No. 14,745.—A. H. STEVENS.—*Improvement in Corn-Shellers.*—Patented April 22, 1856.

The disk B, when in operation, rotates in the direction of the arrow, and the fans *d* create a blast which, by the peculiar shape of said fans, is crowded into the corners *r*, and escapes through the air passages *y*. This current is caught immediately by another system of fans Z, which give it a tangential direction to the circumference of the disk, forcing it upwards against the cap L, and downwards through the open space A and the apertures *g*, (in K,) which are sufficiently narrow not to

permit any grains to pass through them. The heavier corn, being detached from the cobs by means of the teeth *a* on the shelling surfaces B and C, falls through the aperture N in the bottom O of the box A, while the chaff and dust are driven out through the passage M.

Claim.—In combination with the shelling surfaces, the wings Z, openings *y*, and spiral flanges or ribs *d*, for the purpose of creating and driving through the machine a blast or current of air for separating the grain from the other impurities.

No. 14,771.—EBENEZER MATHERS.—*Improvement in Corn-Shellers.*—Patented April 29, 1856.

The object of the tongues D D is to keep the ears of corn pressed out against the teeth C of the cylinder A, as they descend in the channels *k k*, but yielding sufficiently to allow the passage of the cob after the corn is shelled off.

Claim.—The construction of the shaft B, with the channels *k k*, said channels being furnished with elastic tongues D D, for the purpose above specified.

No. 14,990.—CHARLES S. C. CRANE, assignor to SAMUEL M. TINKMAN.—*Improvement in Corn-Shellers.*—Patented May 27, 1856.

The ears of corn pass from the vibrating board Q down the chute O, between bars R R and shelling-wheel C, the springs *d d* pressing the ears against the teeth *a* of the wheel, thereby shelling the corn from the cobs. The plates *e e* prevent more than one ear from being shelled at once at each side of the wheel.

Claim.—The shelling-wheel C, toothed or corrugated on both sides, the pressure bars R R provided with plates *e* on their upper ends, and the feeding device, composed of the uprights *b b* and board Q. The above parts being arranged and operating conjointly, as shown, for the purpose specified.

No. 15,105.—EBENEZER MORRISON.—*Improvement in Corn-Shellers.*—Patented June 10, 1856.

The ears of corn Z are fed into the machine through tube E. As it strikes the feed cones R R, a rotary motion is imparted to the ear of corn by the revolving of the feed-cones and rows of teeth thereon; the angle of the ear being such as to cause the ears of corn to be fed downward just fast enough to allow the shelling-wheel Y to remove all the corn from the cob, and then allow the cob to pass out of the machine at the outlet E^2.

Claim.—The arrangement of the two-toothed truncated feed-cones R R for both revolving and feeding down the ears of corn in such manner that the toothed shelling-wheel Y will remove all the corn from the cob during such revolving.

o. 15,502.—CALVIN ADAMS.—*Corn-Sheller.*—Patented August 12, 1856.

The nature of this invention will be understood by reference to the laim and illustration.

Claim.—Alternating the annular rows of rotating teeth *b* of the helling cylinder with stationary toothed rings *e*, when the said shell- ig cylinder is combined with a rack composed of a series of self- djusting toothed segments *h*, substantially in the manner herein set orth.

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lo. 15,765.—JAMES JONES JOHNSTON.—*Improvement in Corn-Shellers.*—Patented September 23, 1856.

The nature of this invention will be understood by reference to the laim and engraving.

Claim.—I claim the drum D, with the two sets of teeth, arranged s described, and its combination with the vertical guide-boards E F nd spring-plates G H, substantially as set forth, and for the purpose escribed.

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lo. 15,920.—WILLIAM BLACK.—*Improvement in Corn-Shellers.*—Patented October 21, 1856.

In shelling corn with this apparatus, the operator pushes the ears y hand into the holes *g* in such a manner that the teeth A will enter etween the rows of the corn-cob, and by turning the ears, the corn is eparated from the cob.

Claim.—Two or more holes *g*, of different sizes, with teeth A, con- erging in the manner shown, or any equivalent manner, for the pur- ose set forth.

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o 16,191.—HAMILTON E. SMITH.—*Improvement in Corn-Shellers.*—Patented December 9, 1856.

The corn is fed from the hopper J, in between the shelling cylinder ' and the concave G, and as the cylinder is rotated the corn is shelled y the action of said cylinder on the concave. The concave G rests y means of the four pins *g* on the springs I, which can be adjusted y the set-screws F, and thus the concave is permitted to yield during ie operation of the machine.

Claim.—The combination of the cylinder D and concave G, when ade and operating together, substantially in the manner described.

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o. 16,291, EDGAR M. STEVENS.—*Improvement in Corn-Shellers.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the aim and engraving.

Claim.—The self-adjusting cylinder *f*, in combination with the presser-bar *i* and bed *k*, when all are arranged as set forth, and for the purpose specified.

No. 16,127.—JEREMIAH P. SMITH.—*Improved Disk for Shelling Corn.*—Patented November 25, 1856.

The corn-cobs pass from the hopper E into the space between the plates H and the vertical shelling-disk B, and are shelled by the rotation of said disk on its shaft D. The plates H are attached to a rod I, which is pivoted loosely at L, and pressed towards the disk by means of spring *g*. The plates H can be further adjusted by means of bolt F, which passes through slot *d*, and is connected with the supporting arm M.

Claim—The annular concave shelling surface N, on the face of the shelling disk, when employed in combination with the other parts of the machine, substantially in the manner and for the purpose described.

No. 16,177.—WILLIAM B. COATES.—*Improvement in Machines for Cutting the Stalks of Standing Corn.*—Patented December 9, 1856.

As the machine is drawn over the ground, the stalks of one row of corn are caused to pass into the opening between the projections S and T, and a rapid reciprocating motion will be imparted to the knife L, by means of the cog-wheel G on the driving shaft, pinion H, wheel I, pinion J, crank *k*, and connecting rod *h;* and as the knife is hung to an oblique pin, its movement must have a corresponding obliquity. By means of the adjustable connecting rod *h*, the motion of the knife L is so regulated that its cutting-edge may, when at the lowest point of its movement, be in very close contact with the inner edge of the projection S, so as readily to divide the stalks by an oblique cut.

Claim.—The oblique knife L, in combination with the connecting rod *h*, universal joint *g*, and crank *h*, said rod being made adjustable, for the purpose specified and in the manner set forth, or any equivalent to the same.

No. 15,746.—BENJAMIN G. SHIELDS.—*Improvement in Cotton-Pickers.*—Patented September 16, 1856.

The cotton is gathered by the teeth of the chain C running over two pulleys *a* and *b*, through two separate tubes A, as the crank E is rotated; and as the locks of cotton approach on the chain, the arms of the blower G knock it off by a blow from behind, and the blast facilitates and completes the delivery.

Claim.—As an improvement on the patent of George A. Howe, of the 4th December, 1855, the application of a fan or fans to the gathering chain, as a means of removing the gathered cotton from said chain; and this I claim whether said fans be used as set forth, or in any other way substantially the same.

No. 15,606.—Hervy D. Ganse.—*Improved Cultivator.*—Patented August 26, 1856.

The nature of this invention will be understood from the claim and engravings.

Claim.—So constructing and arranging my cultivator, by means of the clevis *x*, the beams M, and brace *n*, substantially as described, that, in combination with the seat W, the plows may be guided by the feet of the driver, in the manner set forth.

No. 14,715.—George Esterly.—*Improvement in Cultivators.*—Patented April 22, 1856.

The object of this invention is to provide a machine capable of cultivating corn, cotton, and other row-planted crops, through all their stages, from the time they spring through the soil and are thinned till they have obtained such growth as to do without further assistance.

Claim.—The hanging of two or more ploughs to a supporting beam or axle H, by swivelling joints at each of the ends of their drag bars G G, so that said ploughs may be moved either way laterally, without affecting the axle, and still maintain their parallelism; and this I *claim* whether the stock to which the ploughs are connected be adjustable in the drag-bars, or the ploughs be adjustable in the stock, or otherwise.

No. 15,453.—Jacob Zimmerman.—*Improvement in Cultivators.*—Patented July 29, 1856.

The cutters *c* cut up the weeds and stalks as they are severed by the cutters C, and also serve to loosen the ground between the rows. The rake R collects the rubbish; and when a sufficient quantity has accumulated, support *s* is drawn up, and the shaft S allowed to revolve; as the arms *a* pass through the comb D, all adhering rubbish is removed thereby.

Claim.—The revolving rake and cleaner, in combination with the series of elastic cutters *c* and flat cutters C, as set forth.

No. 14,254.—Charles H. Sayre and George Klinck.—*Improvement in Cultivator Teeth.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—So constructing a cultivator tooth that, when made of thin or sheet metal, a part thereof shall form a tubular, shank B, whereby said tooth may be drawn up and securely attached to the frame, substantially as described.

No. 15,210.—Abraham Fravel, assignor to Himself and Thomas D. Lemon.—*Improvement in Grain Drills.*—Patented June 24, 1856.

The grain passes from hopper A to the shoes C, which latter receive a perpendicular motion by means of the tumblers M. The grain passes

then from shoes C, through guards D and spouts E, into the teeth F, with cutters F^1. The teeth F are attached to lever G, which latter extends back to form box H for the reception of weights, to give the tooth the necessary depth in sod or hard ground.

Claim.—The combination of tooth F, cutter F^1, and lever G, with shoe C, guard D, and tumbler M.

No. 14,708.—WARREN S. BARTLE.—*Improved Machine for Sowing Fertilizers.*—Patented April 22, 1856.

The fender *u* is let down, as seen in fig. 1, for the purpose of preventing the too rapid flow of the finely pulverized fertilizers. The operation will be understood from the engravings.

Claim.—The distributors composed of the radials *r r r*, in combination with the shaft *k* k^1 k^1 and fender *u*, constructed and arranged substantially as described.

No. 15,976.—REUBEN M. HINE.—*Improvement in the Handles of Agricultural Forks, Shovels, and Hoes.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says:

I do not claim any mode of fastening the handle to the piercing or cutting part of a fork, shovel, or hoe.

Neither do I claim any mode of constructing the head-piece, or of attaching it to the handle; and I disclaim making the handle of any implement whatever of metal, or of an unfilled metallic tube.

But I *claim* making the handle of an agricultural fork, shovel, hoe, or equivalent implement, of a metallic tube filled with wood, as described, whereby the advantage specified is secured.

No. 15,151.—GARRETT J. OLENDORF.—*Improvement in Revolving Harrows.*—Patented June 17, 1856.

The nature of this invention consists of a cylinder C, secured on a shaft which is connected to the driving wheels by gearing, the ratchet wheels E being secured on the cylinder shaft at each end, and serving to prevent the cylinder C from binding, and also to make either of the driving wheels A act independently. The cylinder revolves several times faster than its natural speed would be rolling over the ground, and thereby harrowing the land well.

The inventor says: I do not claim to be the inventor of inverted gear, pinions, ratchet-wheels, or a cylinder constructed with a series of spikes on its surface; for I am aware these have long been in common use. But I *claim* the construction and combination of the several parts of my revolving harrow, the whole being arranged as described and set forth for the purpose specified.

No. 14,149.—JOHN H. MANNY.—*Improvement in Harvester Cutter-Bars.*—Patented January 22, 1856.

This improvement consists in making finger-bars of steel which possesses such strength that a finger-bar sufficiently strong to resist all tendency towards bending or twisting it would yet not be so high or so wide as to obstruct the delivery of the cut grass or grain on the stubble behind the bar; whereas these disadvantages would result from the necessary increase in height and width if the bar were made of iron instead of steel.

Claim.—The tempered steel finger-bar A, by which the delivery of the cut grain or grass upon the stubble is facilitated, and other advantages attained, as herein described.

No. 14,768.—WILLIAM H. HOVEY.—*Improvement in Attaching Harvester Cutter-Blades to the Sickle-Bar.*—Patented April 29, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Attaching the teeth B to the sickle-bar A, by means of the grooved pins *a*, and bar C attached to the bar A, and the plate D having holes *d* and slots *e* made through it.

No. 14,402.—ISRAEL S. LOVE.—*Improvement in Cutters for Harvesters.*—Patented March 11, 1856.

This invention consists in making a double set of teeth X and Y, to be attached to the sickle-bar, whereby the close proximity of the bar and consequent pressure on all the guard-fingers J J is avoided, having always a space between them and the under side of the cutter-bar, which otherwise will often clog up.

The inventor says: I do not claim the cutting-blades in their usual form, nor do I claim the other parts as they have hitherto been used; neither do I claim the tooth X (which may be made either in one piece or more) when used without the tooth Y; but I *claim* the use of the clearing tooth Y, in connexion with the cutting-tooth X, in the manner and for the purpose as set forth, provided the cutters be distinct and the spaces between them continue back to the rear of the cutter-bar.

No. 14,422.—PLINY THAYER.—*Improvement in Harvester-Cutters.*—Patented March 11, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—In combination with the plates *e*, being loosely on the fingers or guards, but kept from moving by the projections *f f* on the plates, and the open countersinks on the guards, the cutters *d*, which are vibrated past those *e*, and held to them by the guides and springs L M, substantially as described.

No. 14,453.—HORACE L. HERVEY.—*Improvement in Harvester-Cutter.*—Patented March 18, 1856.

The nature of this invention will be understood from the engravings and the claim.

Claim.—Furnishing the cutter-bar C with a series of inclined blades or knives A, in combination with the inclined blocks E and rollers *d*, or their equivalents, for giving to said cutters or cutter-bar an oblique cut.

No. 14,544.—JOHN H. MANNY, assignor to PETER H. WATSON.—*Improvement in Harvester-Cutters.*—Patented March 25, 1856.

The nature of this invention consists in constructing a sickle with two edges *b b* in such a manner that either of them may be used. C are cleaning hooks secured to the stock *a; d d* are holes to connect with the connecting rod by which the sickle is vibrated.

Claim.—The reversible duplex sickle, substantially as herein described.

No. 14,777.—BENJAMIN T. RONEY.—*Improvement in Harvester-Cutters.*—Patented April 29, 1856.

A reciprocating motion is imparted to the bars C and D by connecting a rod actuated by a crank on any moving part of the machine to the projection *f;* this reciprocating motion of the connected bars imparts to the cutter-levers E a vibrating motion, so that the knives *h h* and projecting cutters *d d* move across each other in contrary directions.

The inventor says: I am aware that vibrating knives or cutters for harvesters are well known and in common use, and that such cutters have been arranged so as to produce what is known as the shear cut. I therefore do not claim the use of vibrating cutters exclusively, but as an improvement upon the ordinary manner of arranging the same. But I *claim* the slotted bar C and cutter bar D, as connected together by the cross-pieces *e e*, in combination with the cutter-levers E, their knives *h*, and projecting pins *i;* the whole being arranged in conjunction with the fulcrum-bar A, substantially in the manner as shown.

No. 14,790.—JOHN REILY.—*Improvement in Harvester-Fingers.*—Patented April 29, 1856.

The inventor says: I am aware that steel plates have heretofore been inserted into the upper side of the fingers, to act as stationary cutters, but to those I lay no claim, as they are at once costly and liable to get out of order; but I *claim* hardening that part of the tooth on which the knife works.

No. 15,013.—HENRY F. MANN.—*Improvement in Harvester Frames.*—Patented June 3, 1856.

The inventor says: I am aware that harvester frames have been inclined downward in front of the supporting and driving wheel, and where the cutter-bar was also in front of the said wheel. This not only makes the tongue connexion awkward, but, the whole weight being forward of the wheel, throws the machine out of proper balance. But in the machine above referred to, there is no inclination of the pinion shaft, which I deem a material point in the construction of the frame. Such form of frame I lay no claim to; but I *claim* inclining the rear portions of the side-pieces B C so that the shaft *b* may lie upon and have the same dip with the one C on which it is supported, for the double purpose of giving said shaft a firm support, and to bring its drive-wheel J close down to the pinion on the crank-shaft.

No. 15,701.—WILLIAM P. MAXSON.—*Improved Grain and Grass Harvester.*—Patented September 9, 1856.

In this apparatus the sickle E can be raised and lowered by operating the lever G; and the wheel H can be thrown in and out of gear with pinion *c* by operating the lever U, the wheel H being attached to driving wheel F.

Claim.—The wheel H, attached to the driving wheel F, in combination with the curved sliding lever G (on which the driving wheel is hung) and straight lever U, when arranged to operate in the manner and for the purposes set forth.

No. 14,350.—OWEN DORSEY.—*Improvement in Harvester-Rakes.*—Patented March 4, 1856.

As the rake-head passes over the platform A, its movement is horizontal, the arm C passing over the rail from *m* to *h* (fig. 1); but on reaching the edge of the platform the rake-head is suddenly raised by the arm passing up the incline *m* (fig. 3) of the guide rail, while the rake and opposite end of the arm drops at a corresponding incline; and by continuing its movement the rake reaches over the heads of the grain, and, gradually descending by the guide rail, draws the wheat towards the cutters.

Claim.—The combination with the rake-arms *c c*, to which the rakes are firmly attached, of the vertical revolving shaft *i* and cam-way or guide *f f*, *m m*, from which the rake-arms receive an undulating motion in a vertical plane revolving about said shaft *i*, substantially in the manner and for the purposes set forth.

No. 14,043.—GEORGE A. CLARKE, assignor to WILLIAM CLARKE.—*Improvement in Harvester Raking Apparatus.*—Patented January 1, 1856.

As the grain is cut by the sickle it falls over on the platform X, and the rake M is moved back and forth by the endless belt Q, which is

operated by the belt a^1. When the rake M reaches the end of its backward stroke, the teeth are elevated in consequence of the pin o striking against the projection *p*, and the rake, in moving towards the driving end of the sickle, carries the grain off the platform. Just before the rake M reaches the end of the platform, the rod j^1 catches against the end of the arm T and moves it outward, and consequently throws the rod *y* backward so that the grain will fall upon the ground; and as the rake returns, the rod j^1 will draw upon the catch U, and force outward the rods *y* to their original position, so that the rods will catch the grain that is cut opposite to them, and retain it till the rake again arrives at the end of the platform X.

Claim.—Operating the rake M by means of the endless belt Q, in combination with the levers R W connected with the rods *y*, as shown, for the purpose of raking the cut grain from the platform X.

No. 14,693.—WILLIAM H. HOVEY.—*Improvement in Harvester Raking Attachments.*—Patented April 15, 1856.

As the machine is drawn along, the rake D^1 is moved back to the outer end of the platform C, in consequence of the teeth *w* gearing into the pinion on the pulley O, the teeth of the rake D^1 being kept in a horizontal position by means of the weighted arm G. When the rake D^1 reaches the outer end of the platform, the teeth are elevated above the slats *d* by an incline *z*, and kept in an elevated position by the catch-bar H, which fits over a projection on the end of the head E^1. The teeth *w*, on the wheel P, leave the lower pinion *v* at this point, while the teeth *y*, of the inner periphery of wheel P, gear into the pinion *v*, and the rake D^1 is moved from the outer to the inner end of the platform C^1, whereby the cut grain is raked up against the teeth *k* and underneath the teeth *j* of the rake I. At this position of the rake D^1 the catch *i* acts upon the catch M, throwing it free from the lower end of the lever L; and as the rake returns, the catch *i* will draw back the lower end of lever L, by means of pin *r*, and the rake I will be turned, the teeth *j* throwing the cut grain from the platform; the rake returning to its original position as soon as the pin *r* is freed from the catch *i* by means of the weight O.

The inventor says: I am aware that a reciprocating rake D^1, working through a slotted platform, has been previously used, and I therefore do not claim said rake separately.

But I *claim* the swinging rake I, in combination with the reciprocating rake D^1, when said rakes are used in combination with the device for operating the rake I, formed as shown, viz: of the catch M, lever L, with pin *p*, attached to arms *k o*, and the catch-bar H attached to the rake D^1, whereby the proper movements are given at the desired time to the rake I.

2d. I *claim* operating the reciprocating rake D^1 by means of the chains M N attached to said rake, as shown, and passing around pulleys *t u u*, and attached to the pulleys *o o*, which pulleys are turned or operated alternately by the wheel P, having teeth *w y* upon its outer and inner peripheries.

No. 14,026.—JOHN H. MANNY.—*Improvement in Harvesters.*—Patented January 1, 1856.

The front end of the rear section (A) of the tongue projects across the hinge C over the rear end of the front section B, and the projecting end of the rear section is fitted with an adjusting screw *a*, which passes through it and extends toward a plate, *b*, on the rear end of the front section. By turning, to make its point project more or less, the front section of the tongue will be allowed to rise a less or greater distance from the ground without lifting the forward end of the rear section, as the joint C can only be turned downward until the lower end of the adjusting screw *a* comes in contact with the plate *b*.

Claim.—The tongue with an adjustable joint, constructed and operating substantially in the manner herein set forth

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No. 14,046.—LEBBEUS BARNES.—*Improvement in Harvesters.*—Patented January 8, 1856.

A spring *f* is attached direct to the cutter-bar by means of a rod *e*, for the purpose of neutralizing the deadness of action accompanying the reciprocating motion of the cutter-bar, and also for weakening the jerk of said motion. The spring *f* is attached to the frame at the point *g*, and is shown in its two extreme positions drawn in full and in dotted lines.

Claim.—The application to the reciprocating cutter-bar of a mowing machine or reaper of a spring or springs driven by or operating in connexion with the cutter, essentially as specified.

No. 14,079.—JOHN REILY, assignor to Himself, TALBOT C. DOUSMAN and JOHN HEATH.—*Improvement in Harvesters.*—Patented January 8, 1856.

When the driver desires to raise the front of the machine he presses his foot upon the spring *d*, which detaches the pin *c* from ratchet wheel D on shaft *o*; this leaves the lever wheel D free to be rotated by his hand. Wheel D is mounted on the same shaft *o*, and also a small pinion, which latter (being rotated together with D and gearing into the rack F) will raise the rack F on the end of lever E; as this lever is raised it carries up with it the rod *f* attached to the cutter-bar B, in this way raising the front and depressing the rear of the machine.

To the inside of the cutter-bar is hinged the front end of the platform G, the rear end being supported by standard G^1. This standard plays up and down through a mortise in crossbeam A^3, as the platform rises and falls by the inequalities of the ground.

The grain guard I is provided with two arms *i*, so as to project it towards the platform G, in a line parallel with the frame in the same manner as a parallel ruler. This grain guard is projected more or less towards the platform by means of a proper hand lever, for the purpose of enabling the raker to straighten the grain with facility as it is brought

in contact with it in depositing it upon the ground, whether the grain be long or short.

Claim.—1st. The method of raising and lowering the cutter-bar, substantially as described.

2d. The arrangement and combination of a raker's seat with a swinging platform, as described; and,

3d. The adjustable grain-guard or straightening-board I, for the purposes described.

No. 14,205.—B. F. Ray.—*Improvement in Harvesters.*—Patented February 5, 1856.

The guard plate serves to exclude all matter which would tend to obstruct the mechanism enclosed in the wheel. In order that the machine may be conveyed to different points without giving motion to the cutting apparatus, and to prevent the bell crank from becoming bent for want of proper support, the sliding bar M is slotted, which permits the bell crank to remain stationary until secured by pin *t*.

Claim.—1st. Providing the main or driving wheel of reaping and mowing machines with a stationary guard plate R, in the manner and for the purpose herein described.

2d. The sliding bar M arranged in the same horizontal plane with and perpendicular to the axle of the driving wheel of reaping and mowing machines, in combination with the bell crank F, for the purpose of giving direct and positive motion to the cutting apparatus when arranged obliquely to the line of draught, substantially as described.

3d. Forming in the sliding bar a slot for the reception and operation of the bell crank as herein set forth.

No. 15,146.—J. C. Pluche and L. C. Pluche.—*Improvement in Harvesters.*—Patented June 17, 1856.

With this improvement either end of the sickle may be raised or lowered: for instance, if the outer end is raised, the sickle and finger bar will cause the shaft *k* to turn between the two strips *b b;* and if the inner end is raised, the strips *b b* will raise the plates *f f* and frame C, the upper ends of the plates *f* being properly guided in consequence of the roller *g* working in the guide F. The sickle may be raised by the driver at any time, in order that it may pass over obstructions, by depressing lever M. The weighted lever I causes the sickle to descend and keeps it at the surface of the ground.

Claim.—The frame C, when arranged in respect to the driving shaft D, and having the bar E attached to its lower end, and the strips *f* attached to the bar E; the upper ends of the strips *f* having a roller *g*, attached to them, which roller is fitted and works in a guide F, the finger bar G being connected to a shaft *k* fitted within the bar E, when the whole is constructed and arranged substantially as shown for the purpose specified.

No. 15,204.—CYRIL B. WAGNER.—*Improvement in Harvesters.* Patented June 24, 1856.

This harvester is so constructed that should the main wheel D drop into a hole, the rear wheel Q will still keep up the rear of the machine, whilst the frame A will merely oscillate on its bearings C, rolling the pinion F upon the gears *b;* and the tongue E not being influenced by the dropping of the front of the frame, no effect is produced upon the horses.

Claim.—In combination with the main supporting and driving wheel D, and the main frame A, and its supporting wheel Q, the tongue frame B, so united that the motion of one shall not injuriously affect the action of others.

No. 15,236.—JOHN C. HEUERMANN.—*Improvement in Harvesters.*—Patented July 1, 1856.

The machine being drawn along, the angular projections *a* acting on the rollers *m* will, on account of the position of the two sets of projections *a* a^1 to each other, cause the opposite levers H and H^1 to vibrate in contrary directions, imparting through the rods I and I^1 a vibratory motion to the levers J and its arms K K^1, and a corresponding reciprocating motion to the bar E with its cutters *f.*

The inventors say: We wish it to be understood that we do not claim exclusively the employment of cams or projections on the driving wheel in combination with levers for agitating the cutters of harvesters; but we *claim* the wheel C, with its projection in combination with the levers H and H^1, and their scrapers j^1, the rods I and I^1, lever J and arms K, the whole being arranged and constructed substantially in the manner herein set forth for the double purpose of clearing the projections from dirt and agitating the cutters.

No. 15,377.—STEPHEN R. HUNTER.—*Improvement in Harvesters*—Patented July 22, 1856.

The nature of this invention will be understood by reference to the claim and illustration.

The inventor says: I do not claim the rotary cutters working within or through the slotted fingers *c*, separately or in themselves considered, for they have been previously used; but I *claim* the employment or use of the rotating cutters formed of circular plates L, with teeth e^1, at their peripheries; said teeth working through or between slotted fingers *c*, on the plates J, J, when said plates are connected by a hinge or joint *b*, and attached to the frame A, as shown and described for the purpose set forth.

No. 15,582.—WILLIAM TINKER.—*Improvement in Harvesters.*—Patented August 19, 1856.

As the machine is drawn along, the shaft C and wiper wheel F are rotated by the gearing D E, and the wiper wheel, as it rotates, gives a

reciprocating motion to the frame G, rod H, and sickle bar I. The sickle bar has cutters *d* attached to it. The front part of the cutters are of the usual saw-tooth form, the back end of the cutters extend back of the cutter bar, and are merely short projections *e*, with parallel cutting edges which prevent the sickle from being choked by grain or grass collecting between the sickle and finger bar, as the projections *e* cut it immediately and keep the sickle free at all times.

The inventor says: I do not claim, irrespective of the relative arrangement of their cutting edges to the finger bar, and their action, as specified, the reciprocating back cutting projections over or through the fingers between the finger bar and sickle. And I am also aware that a sickle has been provided with back scraping projections, presenting parallel sides or edges, and moving crosswise to the traverse of the machine on or over the plain surface of the sickle bar. Such, therefore, I do not claim. But I *claim* forming the cutting teeth *d*, with narrow back projections *e*, having cutting edges parallel to each other along the sides of each projection, so as to cut at right angles to the face of the finger bar, when said projections are arranged for operation over the fingers between the finger bar and sickle, as specified, in combination with the wiper wheel driving appliance for giving an abrupt action to said cutters for the better clearance from grain or grass of the space which separates the finger bar and sickle, as set forth.

No. 15,638.—HOMER ADKINS.—*Improvement in Harvesters.*—Patented September 2, 1856.

This invention relates to the attachment of a rake to a harvester. The harvester itself may be of any of the well known constructions; Motion being imparted to the pulley M from the driving shaft, the crank N on the shaft of said pulley is rotated, and a reciprocating motion is imparted to the bar O, and the rake P is drawn over the platform B, and rakes the cut grain off. The guide blocks Q and S assist in giving the proper movement to the bar O.

Claim.—The rake operated by means of the crank N, and guide blocks Q S, substantially as described for the purpose specified.

No. 15,721.—WILLIAM H. SEYMOUR and HENRY PEASE, assignors to WILLIAM H. SEYMOUR and DAYTON S. MORGAN.—*Improvement in Harvesters.*—Patented September 9, 1856.

This invention relates to the peculiar construction of harvester frames, by which said harvester can readily be converted from a mowing to a reaping machine, and *vice versa*. Figure 1 represents the arrangement when the machine is used as a reaper. The driving wheel G is to be placed upon shaft G, when the cogged wheel H will come into gear with pinion I and drive the raking and cutting apparatus. The tongue L is held rigid by the insertion of pin *c* into a hole in the standards *b*. In converting said machine into a mower, the block F^1 is removed into the position marked by letter E, the bolts of said block passing through

the holes *f*, and when the driving-wheel is set on its shaft, the arrangement will assume the position represented in fig. 2; the front part of the mower is then supported by means of the wheel M, attached to a frame by a bolt *h* passing through hole *g*, and the tongue L is permitted to play by the withdrawal of the bolt *c*.

Claim.—In combination with the main wheel H, and removable wheel M, a frame capable of allowing the shifting of the former, and the removing or replacing of the latter, when the machine is to be converted from a reaper to a mower, or *vice versa*, substantially as set forth.

No. 15,722.—WILLIAM H. SEYMOUR and HENRY PEASE, assignors to WILLIAM H. SEYMOUR and DAYTON S. MORGAN.—*Improvement in Harvesters.*—Patented September 9, 1856.

Motion being imparted to the machine by the driving wheel F, upon shaft E, the cogged wheel I causes to revolve the pinion H, and the latter transferring motion to pinion *c* rotates shaft *d*, and operates the cutting apparatus by means of crank *e* and pitman K. The pinion J imparts revolving motion to shaft *b* K *l*, and to pinion *g*; and as the latter revolves, it meshes into the teeth of the circular rack N, and runs through the entire length of said rack carrying along the platform Q, which swings on the pin *t*, together with the bearing *w* of the rake *z* and rack *p* and pinion *y*. In the position as represented in fig. 2 of the illustration, the rake and platform Q are progressing towards the front edge of the platform of the harvester. When the pinion *g* has arrived at the front end of the rack N, it is caused to descend to the lower side of said rack, and by thus descending the rack *p* operates the pinion *y*, and turns the rake shaft *x* and rake *z* from a horizontal into a vertical position, the rake commencing its rearward motion and raking the grain off the platform. The driver sitting on the seat M, fig. 1, can, by the pressure of the foot upon the lever *g*, operate the clutch-arms *g* in such a manner as to connect or disengage the shaft *b* from the shaft K, and can thus either stop the motion of the rake altogether, or regulate its motion so that the gavels on the platform can all be formed of the same size.

Claim.—The particular arrangement of the clutch and clutch lever, with regard to the conductor's seat and platform, and the shaft *b*, from which motion is communicated to both the rake and sickle, as that the operator from his seat, having a distinct view of the platform, can engage or disengage said rake with his foot, whilst the sickle continues to run, substantially as set forth.

Also, the combination of the universal joint *i*, for connecting the shafts *b k*, the sleeve *l*, and plate Q with its guide *m m*, and gimbal joint *o*, for giving the rake its transverse movement, as described.

Also, the bow and rake head, so formed as to incline towards their outer ends, and so acting as to cause the bent or entangled straws to slide off on to the platform, substantially as described.

No. 15,735.—William Gage.—*Improvement in Harvesters.*—Patented September 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I *claim* raising and lowering the finger-bar and cutters by means of swinging the outside frame, to which the finger-bar is attached, upon two pivots upon the inside frame, and holding the same where placed by means of the serrated plates E E and tightening rod *d d*, when said frames are constructed and arranged to operate in relation to each other, and the driving wheel, finger-bar, and cutters, in the manner and for the purposes set forth.

I do not claim a board set edgewise and upon an angle inward, when the same is not combined with the wheel W, and used for mowing, whether fixed immovably to finger-bar or hung upon a hinge.

Neither do I claim a mould board or a dividing board, when combined with, and fixed on, a platform and used for reaping.

But I *claim* the peculiarly adjustable mould board *z y*, in combination with the wheel W, and its supporting arm, *x y*, when used in mowing, for the purpose of protecting the wheel and arm from loose grass, and prevent its lodgment thereon, when the above parts are constructed and arranged in the manner described.

No. 15,855.—Israel S. Love.—*Improvement in Harvesters.*—Patented October 7, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The use of the movable rolling guides E, placed between the cutting blades D and the sill A of the harvester, whether they be used with a sill made entirely of metal, or partly of wood, with more or less metal attached to the same.

No. 15,843.—William Dripps.—*Improvement in Harvesters.*—Patented October 7, 1856.

The cutters *b* are set into the links E of an endless chain in such a manner that they can play freely in their bearings; as the wheels D are rotated they impart motion to the chain and to cutters *b*, and when the cutters arrive to the front side of the machine they are caused to revolve as the pinions *c* come in contact with the rack G, thus assuming a travelling and revolving motion while they operate upon the fingers C.

Claim.—Giving to the cutters of a harvesting machine a travelling and a rotating motion, at the same time and by means substantially such as described.

No. 15,882.—CARLOS W. GLOVER.—*Improvement in Harvesters.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Attaching the finger bar E to the guide box B, which is fitted over the flanch b^1 of the driving wheel A, as shown; the guide box having the two shafts C D attached to it, by which motion is communicated to the sickle from the driving wheel, and the bar F, attached to the finger bar by hinges or joints *k*, and the guide box B, to the rod H; the whole being arranged, as shown, for the purpose set forth

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No. 15,927.—PELLS MANNY.—*Improvement in Harvesters*—Patented October 21, 1856.

A straining bar E is attached underneath the frame A. The screw *e* passes through the centre of the axle D, so as to bear upon the bar E, in such a manner that, upon suitably adjusting the screw *e*, the bar E is depressed at its centre, by which means the finger bar *a* may be kept perfectly horizontal.

Claim.—The straining stirrup or brace bar E, arranged diagonally beneath the frame, and fitted so as to secure the ready and effectual adjustment of the frame or finger-bar portion thereof, as described.

No. 16,079.—ALVIN BULLOCK.—*Improvement in Harvesters.*—Patented November 11, 1856.

As the machine is drawn along, the zig-zag flanch D will operate the lever J, giving it a vertical vibratory motion, and the bent lever G will also be vibrated, imparting a reciprocating motion to the cutter bar H.

Claim.—Operating the sickle bar H by means of the right angle lever G on the shaft E in combination with the lever T, bar *c*, and flanch D, when the same are constructed and arranged to operate in relation to the main frame A, drive wheel B, and adjustable finger-bar 1, in the manner and for the purpose set forth.

No. 16,194.—WILLIAM TINKER.—*Improvement in Harvesters.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

The inventor says: I do not claim driving or operating the sickle F by means of the bent lever D and the scolloped rim *a* and ring *b* on the driving wheel; for this or equivalent devices have been previously used.

But I *claim* the enployment of the freely turning support *d*, arranged and operating substantially as described, in combination with the bent lever D and scolloped driving wheel C, for the purpose of securing said lever from strain, and at the same time of retaining the utmost facility and freedom of motion thereof in the manner specified.

No. 14,553.—SAMUEL COMFORT, jr.—*Improved Apparatus for Removing Grain from Harvesters.*—Patented April 1, 1856.

The radial grating is formed of the rods *e e e e*, which are secured to the curved bar E. The bar S, with its projecting rods *v v v v*, constitutes the grated platform.

To the bar S is secured the guide T, the lower legs of which slide in a bracket U, the upper leg being guided in a sleeve W.

Claim.—1st. The employment in harvesters of the grated platform and radial grating, the same being constructed and operating in conjunction with each other as described.

2d. The radial grating with its two rollers *a* and a^1, shaft F, and arm G, as connected to the shaft H in combination with the curved plate D and its curved recess *d*, (the said shaft H being acutated in the manner set forth or any equivalent to the same,) for the purpose of turning over the said radial grating and clearing it of the grain or grass.

3d. The arm G, with its projection R, recess *r*, and jointed inclined plane Q in combination with the shaft P, its cranked portions *t* and *p*, and roller *h*, for the purpose of giving the grated platform the desired vertical movement.

No. 14,769.—SALEM T. LAMB.—*Improvement in Automatic Rake for Harvesters.*—Patented April 29, 1856.

The rake moves along the platform longitudinally, carrying the grain ahead of it, and, when the rake reaches the point *o*, a projection *n* on the rake strikes against a friction roll O and holds the rear of the rake, while the front part of the rake turns upon its pivot *i* and coils up the spring J. Just as the hook *l* runs out from under the ledge N at *m*, *j* strikes against a roll *p* and causes said cam to turn on the shaft K and raise up the rake vertically; the spring J uncoils and returns the rake to the original position with regard to the arm L. As the cam J rolls on the shaft by striking against *p*, a pin *g* thereon passes under the ledge behind C and holds the cam, rake and all, in the raised up position, until the cam traverses back and meets a stop roll P, which turns it back around the shaft K, whereby the pin *g* is drawn out from under the ledge N, and the rake is let down gently by the intervention of the cam ledge Q, which receives the pin *g*.

The cam J receives its motion by means of the pitman I, the arm H attached to the turning stud F, and the short arm *g*, which has a friction roll *h* on its end—said roll passing between the cam rings E, whereby a variable turning motion of the stud F is caused.

Claim.—Giving the rake M its circular motion by means of the traversing and rocking cam J, in connexion with the revolving cam E, which gives the longitudinal motion, through the intervention of the devices substantially such as described.

o. 16,307.—Samuel Comfort, jr., assignor to Edward S. Renwick.—*Improvement in Automatic Rakes for Harvesters.*—Patented December 23, 1856.

As the machine is drawn along, the pinion N is rotated; this pinion attached to shaft M, which turns in the stationary bearings *m*. The inion N, in position, as represented in figure 3, in revolving, causes e endless rack I to move in the direction of the arrow, and at the ame time the entire raker frame, composed of parts L, P, T, S, R, oves in the same direction, towards the rear end of the harvester latform, the raker U V being in the position as shown in figure 2. When the pinion N comes in contact with the end i^1 of the rack I the atter is raised, together with frame L and rod P, and rake U V is thrown n the position of figure 1 by the action of rod P upon link *q* and lever l; as the pinion N revolves further, the rack I and extended rake move owards the front end of the platform. As soon as the pinion begins o act upon the teeth *i* of the rack, the rake U V returns to position igure 2, sweeping off the grain and compressing it against plate H, nd the gavel thus formed is carried to the rear of the machine by the ackward movement of rack I, and dropped as soon as the rake returns o position figure 1.

Claim.—1st. The combination of the rake handle, the guide which ts upper end traverses, and the lever to vibrate the rake in and out, hen arranged for joint operation, substantially as set forth.

2d. The counter loading of the rake for the purpose of rendering he draft of the machine more equable, substantially as set forth.

3d. The combination of the rake with the mechanism for moving he same to and fro over the platform with a traversing carriage, substantially as set forth.

4th. The method of discharging the gavel before being bound by lropping it from between the rake teeth V and the plate H, while he machine is in motion, as if it were standing still, by neutralizing he forward motion derived by the gavel from the machine by its backward motion derived from the rake, substantially as set forth.

5th. The combination of the rack and pinion, or the equivalent hereof, with the rake, substantially as set forth, whereby the motions re generated for traversing the rake, first along the platform to gather he grain into a gavel, and then across the platform, to discharge the avel.

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o. 15,449.—C. B. Wheeler and Austin Bascom.—*Improvement in Clover-seed Harvesters.*—Patented July 29, 1856.

When this apparatus is drawn along, the clover heads pass between e stationary teeth *b* and the reel F, which is hung in an adjustable ame E, strikes against the clover heads, which are cut off, and are rown within the body A, an endless apron H, conveying them the rear part of the body.

Claim.—The reel F and cutters or teeth *b*, placed within the sliding adjustable frame E, in combination with the endless apron H, the arts being arranged as shown, for the purpose set forth.

No. 14,076.—GEORGE W. N. YOST.—*Improvement in Corn Harvester*—Patented January 8, 1856.

As the machine is moved forward, the driving wheel communicates revolving motion to the knife B, and by means of the rods G, which are allowed to run on or near the ground, and may be adjusted by cords *a*, all stalks of corn which lie across the track are gathered between the said rods and caused to come in contact with the knife inside of finger board *d*. As the corn is cut off it is taken by the man standing on platform E and set back against the frame F; and when sufficient is set up to form a shock, the tops are bound and the frame opened at *h*, and the lever *c* is moved, which allows the platform to fall and the shock is left standing already secured.

Claim.—The combination of the adjustable lifters G G, finger board *d*, revolving sickle-shaped knives B, vertical adjustable frame F, and the adjustable platform D, for the purpose of harvesting corn, when all are operated and operating as described and herein set forth.

No. 14,34 .—WILLIAM M. BONWILL.—*Improvement in Corn Harvesters.* 4Patented March 4, 1856.

As the machine is drawn along, the saws J J are rotated by means of the gearing as shown, and the saws cut the stalks, each saw being in line with a row. The cut stalks fall upon the plates K K, and when a sufficient quantity is upon the beds, the rods *b b* are depressed by the driver, and the lower ends of the rods *c c* are thrown outward thereby, and the stalks are thrown upon the ground.

The inventor says: I do not claim the circular saws for cutting the stalks, for they have been previously used; but I *claim* the two saws J J placed at the front part and at each side of the platform A, in combination with the horizontal plates or beds K K, and discharging rods *c c*, arranged substantially as herein shown and described for the purpose specified.

No. 14,730.—R. C. MAUCK and W. T. MCGAHEY.—*Improvement in Corn Harvesters.*—Patented April 22, 1856.

Figure 1 represents one half of the plan view of the machine, and figure 2 a section of the same. The harvester is driven forward so that one of the stalk receivers *f* will embrace each stalk of a row as it comes in contact with the said stalks. As the stalk is cut by the cutter *a*, the vibrating frame *k* throws it upon the inclined guide *n*, across the machine, whence it falls within the action of the arms *p*, which convey it under the packing guides *q*; as these guides pass close to the bottom of the body, the stalks accumulate under them and cause the rear stalks to be forced backward until the body is filled. Simultaneously with the cutting of the stalks by the cutter *a*, the cutters *b* sever the stumps from the ground and permit the passage of the machine.

Claim.—1st. The rotary arms *p*, in combination with the packing guides *q*, for affecting the filling of the body.

2d. The employment of a double series of cutters for cutting the stalks and stump, and thereby admitting of the delivery of the cut product without elevation.

No. 15,152.—WILLIAM S. TILTON.—*Improvement in Corn Harvesters.*—Patented June 17, 1856.

As the implement is drawn along, the two cutters G G are rotated by the chain H, and the standing stalks will be encompassed and drawn towards the knife J by the cutters G G, the stalks being cut between the cutters and knife. The frame E may be raised or lowered by loosening the screws *a* so that the cutters and knife may be placed the desired height from the ground.

Claim.—The rotating cutters G G and stationary knife J, placed within an adjustable frame E, arranged as shown for the purpose specified.

No. 15,533.—ANDREW SPRAGUE.—*Improvement in Corn Harvesters.*—Patented August 12, 1856.

Motion is imparted from the driving wheels N by means of gearing to the wheels D, attached to trunions E; the rod B passes through the side pieces of a frame C, which are provided at their rear ends with pivots *a*, which are made to slide in a horizontal groove *b*. The stalks or stems of grain pass between the knives A, and when the knives A arrive at the position marked in dotted lines, they bring the grain so near the thin edged guard K as to deliver it on said guard, whence it falls into the elevators L.

The inventor says: I do not claim the tongue steering wheel, or the drive wheels and elevators. But I *claim* the guard K, in combination with the knives A, operated in the manner and for the purposes set forth.

No. 15,409.—JOHN W. BATSON.—*Improvement in the Cutting Apparatus of Corn and Cane Harvesters.*—Patented July 29, 1856.

The nature of this invention consists in the peculiar construction of the cutting apparatus of corn and cane harvesters, by which the blades D, when set obliquely into a frame E, and held there tightly by the projections *b* and bar F, may cut the corn or cane by being drawn through the stalks, said knives being stationary and not movable, as in grain harvesters.

Claim.—The double-angled V-shaped cutters, composed of strips and under supports, substantially as represented and for the purposes set forth.

I also claim hanging said cutters to a pivoted bar, so that they may be raised up out of cutting position when the machine is drawn through the stubble, to prevent their catching against the previously cut cane or corn, as set forth.

No. 15,408.—JOHN W. BATSON.—*Improvement in the Raking Apparatus of Corn and Cane Harvesters.*—Patented July 29, 1856.

The corn or cane when cut falls on the endless belts L L^1 on the platform A, which are set in motion from the driving wheel B by the arrangement as represented in the illustration. The corn or cane is caught by the rake teeth *d* and conveyed up the shield M, over the pulley K^1, to the inclined shield M^1, where it is discharged into a wagon fastened along side the machine.

Claim.—In combination with the endless rake belts L L^1, passing under and over the platform, and thence over the pulleys K K^1, the shield M placed between them, when said shield receives the corn or cane from the rakes at their highest elevation, and conveys it into a wagon or other receptacle alongside, substantially as set forth.

No. 14,761.—MILTON BARLOW.—*Improvement in Cradling Harvesters.*—Patented April 29, 1856.

The nature of this improvement in harvesting machines consists in so arranging the mechanism controlling the revolving cradles that by an eccentric I (secured to an upright journal E, on which the cradle arms revolve) the attendant is enabled to operate on the cradles by means of a yoke or ring K on said eccentric, through the agency of connecting rods *m m* attached to the heel of the cradles, for the purpose of controlling the movement of the cradles, giving a drawing cut to the blades thereof. A further improvement is in delivering the grain gathered in the inside of the cradle fingers by a fixed rake *q* placed on the journal E, by which the cut grain is removed therefrom, and after being received on the rake teeth, by a partial revolution of said rake the grain is suffered to drop in suitable bundles for binding.

Claim.—Constructing and operating the cutting portion of the machine so that, by the use of the eccentric I, or a cam or crank as a substitute therefor, operating on the cradle, when in combination with the means of delivering the cut grain by the use of a rake, operated substantially in the manner and for the purposes set forth.

No. 15,205.—CYRIL B. WAGNER.—*Improved Cutting Apparatus for Harvesters.*—Patented June 24, 1856.

The sickle bar G, which rests upon the shoulders H H on each side of the oil reservoir *b*, is in contact with the sponge E, and thus constantly lubricates the places it slides over. Any moisture that would otherwise accumulate under the sickle is allowed to drip off into the channel C, and thence out of the openings *a a*.

The inventor says: I would state that I do not singly claim forming the finger or guard of a harvesting machine, with the hollow or depression C *a;* but I *claim* forming the finger or guard A, having said depression C, with an additional depression as at *b*, and so uniting the sickle and sickle bar G thereto as to facilitate and render easy the cutting.

No. 15,677.—C. WHEELER, jr.—*Improved Cutting Device for Harvesters.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim and engraving.

Claim.—Attaching the fingers C to the finger-bar B, and the cap D to the fingers as shown, and having a plate E placed on each finger, on which plates the teeth F of the sickle rest and work; the whole being arranged as herein described for the purpose set forth.

No. 16,134.—JOSEPH A. MOORE and ASAHEL H. PATCH.—*Improved Finger-Bar arrangement for Harvesters.*—Patented November 25, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—On folded sheet metal finger bars the combination and arrangement substantially as shown and described of the folded sheet metal bar A, with fingers B, when the latter are inserted through holes in the front and rounded folded portion of the bar, and griped and pinched between and by the lips of the bar in the rear and secured essentially as specified.

No. 14,250.—JOB PHILLIPS.—*Improvement in Grain Harvesters.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The self-adjusting platform *a* hinged at front at a^1, and so governed in its motions at the rear by the short arm d^1 of the regulating slide lever *d*, or equivalent thereof, as to maintain a fixed distance of the rear part from the ground, while the front part is raised or lowered by he adjusting lever e^1, as set forth.

No. 14,556.—AUGUSTUS ELLIOTT.—*Improvement in Grain Harvesters.*—Patented April 1, 1856.

The machine is constructed in two similar compartments A and B, hinged together for the purpose of enabling it to accommodate itself to the transverse inequalities of the land. The bundling apparatus is shown on compartment B. The teeth upon the gatherer w^1 are so placed, with reference to the bundling apparatus, as to pass over the spring platform v^1, and rake the grain therefrom on to the lower band o^1 p^1 at the same moment that the teeth upon the wheel *i* engage with the spur wheel u^1, which gives motion to the rollers o^1 p^1 s^1 t^1 q^1 r^1, &c., and endless bands, during about one third of a revolution, which is sufficient to convey the grain (which has been accumulating on the platform during a whole revolution) through the compressing apparatus, and project the bundle about one half of its length out of the end

of the apparatus, where it stops during the remaining two thirds o revolution, giving time to the boys to bind it.

Claim.—1st. Forming the cut grain into sheaves or bundles by n of a series of endless bands and rollers, having an intermittent n as described.

2d. The spring apron *s*, constructed substantially as describe for the purposes specified.

No. 14,102.—WILLIAM F. KETCHUM.—*Improvement in Grain Grass Harvesters.*—Patented January 15, 1856.

The bar D has a sufficient degree of elasticity to allow the c bar to rise and pass over obstructions when cutting grass. Whe implement is used for cutting grain, the cutter-bar and platfo supported in a firm and rigid state by the additional support bar G.

Claim.—Supporting the cutter-bar E and platform H, when tl plement is used as a grain harvester, by the bar or rod G, in ad to the bar D, said bar or rod being arranged or attached to the c bar E and frame A, as shown and described, for the purpose set

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No. 14,127.—GELSTON SANFORD, THOMAS HULL, and STE HULL.—*Improvement in Grain and Grass Harvesters.*—Patentec uary 15, 1856.

When the bearings *b* of the driving wheel are in the position sented by full lines, the sickle and platform will be near the surf the ground, because the axis D of the driving wheel B will be furthest point from the frame A; but if the bearings *b* be turned eyes C, by moving the bars E around, (see dotted lines,) the a will be brought nearest to the frame A, and the frame and sickle will be elevated.

Claim.—Placing or hanging the axis D of the driving-wheel circular bearings *b b*, which are allowed to turn in eyes or straps attached to the frame A, the axis being placed eccentrically or centre in the bearings *b*, substantially as shown, and for the pu specified.

No. 14,148.—JOHN H. MANNY.—*Improvement in Grain and Gras vesters.*—Patented January 22, 1856.

The nature of this improvement will be understood from the and engravings.

Claim.—1st. In connexion with a dividing piece L, for throwi the grain inwards from the extreme ends of the cutters or platf recess or space s^1, into which a portion of the grain may after drop, and be cut, for the purpose of obviating the tendency to or clog at the ends of the cutters, substantially as described.

Also, the intermediate piece P, between the tongue and the c

beam, for the purpose of providing a yielding or elastic joint, not only at or about the line of the cutters, but also at the heel of the tongue, substantially as described.

Also, in combination with the lever U, having its fulcrum pivoted immediately between the tongue and the frame of the machine, the strap V, and hinged supporting piece S, for the purpose of regulating the height of the cutters, substantially as described.

No. 14,212.—ABNER WHITELEY.—*Improvement in Grain and Grass Harvesters.*—Patented February 5, 1856.

The nature of this improvement will be understood from two positions of the machine, represented in the engravings.

The inventor says: I do not claim oscillating the finger bar about an axis within itself, irrespective of the relations between the main frame and the master-wheel shaft. But I do *claim* so constructing the machine (as above described or otherwise, the result being substantially the same) that the driver is enabled, while the team is in motion, the master-wheel shaft being rigidly connected with the main frame, to change the angle of the fingers and cutters, without moving the finger-bar from the ground.

No. 14,266.—GEORGE W. N. YOST.—*Improvement in Grain and Grass Harvesters.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I do not claim springs for holding the cutter bar against the upper portion of the finger, as in the patent of Sylvester Colburn; but what I do *claim* is combining with the cutter bar *a* of harvesters a series of friction rollers *e e*, which said rollers are kept constantly pressed down on the cutter bar by means of springs b^1 b^1, for the purpose and substantially as set forth.

No 14,409.—B. T. RONEY.—*Improvement in Grain and Grass Harvesters.*—Patented March 11, 1856.

This invention relates to that class of mowing and reaping machines in which the cutters are situated in advance of the horses, and consists in constructing a machine with two distinct frames, separate from but dependent upon each other. One frame is the permanent or gear frame A A^1 A^2, B B^1, C C^1 C^2 C^3, E F, to which are attached the supporting wheels, the driving wheel L, and the gearing for producing the motion to be transferred to the second part of the machine, which the inventor calls the movable or cutter frame T T^1 U V W. The motion for operating the cutters is communicated by a chain from a pulley on the gear frame to a pulley on the cutter frame. These two frames are so adapted to each other that the cutter frame may be elevated or lowered and oscillate on the gear frame, allowing the cutters to

operate on level or uneven ground without disturbing the tightness of the driving chain.

As the rollers *y* rise over the ground and raise the cutter frame, the points of the lugs *t* on the bar W will bear against the tops *u* of the gear frame, and have a tendency to project the whole of the cutter frame slightly forward; thus the chain will be maintained tight around the surfaces of both pulleys.

The inventor says: I do not claim exclusively double cutters operating simultaneously, nor the use of vibrating cutters, nor belts for carrying off the grain to one side of the machine; but I *claim* the gear frame, with its lugs *u u*, in combination with the movable or cutter frame, its bar W, lugs *t t*, and bevelled projections V V, the whole being arranged and constructed substantially in the manner and for the purposes set forth.

No. 14,428.—ABNER WHITELEY.—*Improvement in Grain and Grass Harvesters.*—Patented March 11, 1856.

From the front edge of the cutter bar K forward, the shoe C is about half as wide as in the rear, permitting the end of the cutter to play out of and return into the divider in the groove. B is another form of the shoe, having its front point terminate at the point of the blade which cuts against it, and having no top, but is cut against in the same manner as the side fingers 5 5.

The points of the fingers terminate near the blades, in order to permit the blades when vibrated to cut off any grass that gets on them.

Claim.—1st. The narrow divider C, as described, and for the purposes set forth.

2d. I claim making the divider with that portion forming the under or upper side of the slot removed, as the case may be, as set forth.

3d. I claim terminating the shoe B at or near the point of the blade which cuts against it, to prevent it carrying grass.

4th. I claim extending the tops of the guards over the edges of the lower portions, as described, for the purposes set forth.

5th. I claim the double cap 6 6, as described, *i. e.*, the caps of two guards in one piece, having one shank for attaching it to the finger piece; but I do not claim one cap, with two shanks for attachment.

6th. I claim attaching the shanks of the guard caps to the finger piece, as described, for the purpose of preventing straws or blades being carried beyond them to cause clogging.

7th. I claim terminating the points of the finger or fingers at or near the points of the blades, for the purpose set forth.

8th. I claim making one side and also one edge of the cutter bar, or either of them, a rasp or rough surface, as described, and as set forth.

No. 14,441.—THOMAS D. BURRALL.—*Improvement in Grain and Grass Harvesters.*—Patented March 18, 1856.

A pointed shoe *o* is attached at the end of the finger board *m* to separate the cut grass from the uncut grass; and beneath this is a movable

ıe *v*, jointed at its forward end to the shoe *o;* and at the back end a ık piece 14 is jointed to the shoe *v*, passing up at the back of the ger board, and having a slot through it, and a screw 15 passing ough the finger board, by means of which the finger board can be sed or lowered to cut at the required height.

K is a face gear wheel on the sides of the driving wheel *a*, commu- ıating motion to a pinion *i*, on the horizontal or line shaft *f*. 5 is a ırnal near the forward end of said shaft, and is fitted loosely to said aft to allow the pinion *i* to be thrown in and out of gear by means a lever *g*, jointed by a fulcrum pin to the frame *b* at 24.

Claim.—The inventor says: I am well aware that single gearing has ɐn used in a variety of forms; therefore I do not claim any such ar- ıgement in itself: but I am not aware that any arrangement of single ɐaring has ever before been constructed in the manner herein described ıd shown, wherein by the use of a shaft with a bend arm on the end ıe line shaft *f* can be carried close to the main driving wheel, and ıe pinion *i* be so far removed from the fixed journal 5 that the same ın be thrown in or out of gear with ease, and at the same time a small ınion and feet motion can be used, which could not be accomplished ithout the use of the bent arm 2 to the shaft 1, in the manner set rth. Therefore what I desire to secure by letters patent is:

1st. The shoe piece *v* and rack 14 to adjust the height of the outer ıd of the finger board, substantially as specified.

2d. I claim the arrangement of the shaft *f*, in the journal 5, with its nion *i*, taking the wheel K when combined with the bent arm 2, in e manner and for the purposes specified.

). 14,448.—ELIAKIM B. FORBUSH.—*Improvement in Grain and Grass Harvesters.*—Patented March 18, 1856.

E represents the adjustable shoe that connects the finger-bar F and tters to the frame. It is made in three parts. The upper or bon- t part *c*, the shoe *c e*, and the compressing part *c e c*. The two arms and *t r* form the segments of circles whose centres are in the joints n.

Claim.—1st. I claim as my invention the adjustable shoe E, for the pur- se of levelling the platform, constructed and arranged substantially as rein described.

2d. I claim suspending the pole P, to which the team is attached, ɔn a hinged journal *a b* upon the axle of the driving wheel, in order at the draft of the team when moving forward may be directly from e axle of the driving wheel, (leaving the frame H, finger-bar F, and ıtters free to oscillate and independent of the pole and the draft of the am,) and also, when backing, the power of the team may be exerted ɔon the frame in rear of and below the axle of the driving wheel, ıbstantially as herein described.

No. 14,541.—ABNER WHITELEY.—*Improvement in Grain and Grass Harvesters.*—Patented March 25, 1856.

The finger-piece T is braced by means of the rod U, to prevent its sagging.

I do not claim the segmental plates D D, separately as used to change the height of cut, in relation to the frame B B, or their use when attached to the main frame for the purpose of rendering the cut adjustable in height; but what I do *claim* is forming a joint at *a*, by means of the plates D D, plates E E, and the lugs as described, of sufficient strength to support the ground wheel A, and retain the driving cog wheel in gear while running, without any other connexion with the main frame C C.

2d. I *claim* placing the driver's seat Q on the opposite end of the frame B B^1, from the joint at *a* in such a manner that the driver's weight when seated on it shall balance some portion of the frame-work, &c., of the machine, and throw the weights thus made to balance each other on to the wheel A, while the angle of the cutters and fingers is is preserved.

3d. I *claim* bracing the finger-piece T, so as to make it self-supporting, as described, and for the purposes set forth.

No. 14,582.—GEORGE W. N. YOST.—*Improvement in Grain and Grass Harvesters.*—Patented April 1, 1856.

To the cutter-bar *a* are fastened two projecting racks *b b*, the teeth of which gear with the teeth *e c* on the rim *d* of the caster. The racks b^1 b^1 on the rim *d*, gear with the teeth c^1 c^1. The racks are placed together and secured by the king bolt *k*.

When the cutter-bar is to be raised or lowered, the king bolt is removed and the teeth of the rack are set at the required height.

Claim.—"The combination of the racks *b b* b^1 b^1 and king bolt *k*, arranged as set forth for adjusting the cutter-bar of harvesters."

No. 14,661.—WILLIAM H. HOVEY.—*Improvement in Grain and Grass Harvesters.*—Patented April 15, 1856.

The lips or projections *m k*, at the front ends of the finger and sickle bars form a close joint and prevent the grass from working underneath the sickle, and the lower end of the lip *k*, resting upon the ledges *l* on the fingers, causes the sickle to work with little friction, the sickle and cutter-bars not being in contact.

Claim.—Providing the front ends of the cutter and sickle bars with lips or projections *m k;* the lip or projection *k* bearing upon ledges *l* on the fingers, substantially as shown and for the purpose specified.

No. 14,694.—WILLIAM A. KIRBY.—*Improvement in Grain and Grass Harvesters.*—Patented April 15, 1856.

The nature of this invention will be understood from the claims and engravings.

ıventor says: I am aware that an angle-iron as a bar for the
of the fingers is not new; but I *claim* the manner of attaching
rs F as constructed with semicircular reapers *x x*, whereby
secured to the angle-iron finger-bar by bolts without reducing
ıgth of the bar *d* of the finger I, while the bolts themselves
e double purpose of securing the fingers and as guides to the
ır substantially as set forth.
claim the use of the rivets *g g*, when projecting above and
he cutters, and used with the interspace *f* and recesses *s s* of
rs.

)80.—JAMES T. YOUART.—*Improvement in Grain and Grass sters.*—Patented May 27, 1856.

eciprocating motion of sickle C causes the square edged col-
) to vibrate about the pivots *a* which are attached to the frame
: projections a^1, as they vibrate, collect the grass and press it
he cutting edge of the sickle C, and cause it to be cut.
.—The cutting device formed of the reciprocating frame B,
e straight edged sickle *c* attached, in combination with the
dged collectors D connected with the frame B, and having a
; movement.

)29.—ALLEN B. WILSON.—*Improvement in Grain and Grass sters.*—Patented June 3, 1856.

: machine is drawn along a reciprocating motion will be com-
ed to the bar E by means of wheel B and bar G, and the
) will act alternately against the sides of the strips *a* on the
: between which they are placed, the straps *a* preventing the
dges of the cutters from being injured or becoming dull, and
a bearing for the grass or grain.
.—The elastic strips *a* fitted in the fingers C.

72.—OREN STODDARD.—*Improvement in Grain and Grass Har-*
.—Patented September 2, 1856.

ature of this invention will be understood from the claim and
ıg.
nventor says: I do not claim the pivoted cutters K, irrespec-
he peculiarity of their relative position or movements with each
ı shown.
claim the cutters K pivoted to the finger-bar D, and operated
ams *a* on the shaft L, when said cams are placed in varying
ı, as described, for the purpose set forth.

)57.—MOSES G. HUBBARD.—*Improvement in the Cutting Appa-of Grain and Grass Harvesters.*—Patented November 11, 1856.

ingle cutter *c* is caused to vibrate between the upper and lower
of the double cutter *b*, and the grass while being cut is sup-

ported both above and below the edge of the single cutter, by the double edge of the double cutter *b*, as effectually as it has heretofore been by the ordinary guard finger.

Claim.—The combination of a single cutter with a double cutter, when both are constructed substantially in the manner described, and made to reciprocate in directions opposite to each other, substantially in the manner and for the purposes described.

No. 16,097.—C. A. McPHETRIDGE.—*Improved Binder for Grain Harvesters.*—Patented November 18, 1856; antedated October 25, 1856.

A detailed description of this invention would take up too much space to be given here. The principal features of it will be understood by reference to the claim and engravings.

Claim.—The combination of the reciprocating arm G^1, with spring pliers G, attached with stationary arm M, revolving twister *r*, cutting plate *q*, friction brake q^1, spring *u*, and movable plate *o*, when the same are constructed and arranged to operate in relation to each other, and the main frame and driving wheel, for the purpose of binding grain from a continuous coil of wire, in the manner described and set forth.

No. 14,036.—GEORGE W. N. YOST.—*Improvement in Grain Binders for Harvesters.*—Patented January 1, 1856.

The nature of this invention can be understood by reference to the claim and illustrations.

Claim.—The double reciprocating compresser a^2 for gathering and compressing the grain against the stationary compressers *a a*, ready for binding, operating and operated substantially as described.

No. 15,264.—WALTER A. WOOD.—*Improved Guard-Finger for Harvesters.*—Patented July 1, 1856.

In this improved guard-finger, there is united in what is termed the wide guard elements not heretofore united in one guard, viz: the raised cutting edges *a a*, the narrow neck C, the rear depression A, and the forked cap E; all of which aid to facilitate the cutting, and readily pass the cut grass over the finger-bar B.

Claim.—The particular form and construction of the finger or guard, as herein represented, viz: with the forked cap E, recess or depression A, raised edges *a a*, and neck C behind them, by means of which the cutting is facilitated in the manner set forth.

No. 15,311.—C. WHEELER, jr.—*Improvement in Raking Attachment to Harvesters.*—Patented July 8, 1856.

When the rake R^1 is at the outer end of the platform A, the teeth *b* will be in gear with pinion L, and the rope *c* will draw the slide R and

R^1 across the platform, and will rake the grain off the end of the m. When the rake reaches this point, the cam U will actuate l T, and said rod will turn the ways P P, so that the rake R^1 will ed clear of the platform as shown in fig. 1, and the teeth *a* will ear into the pinion L, and the slide R and rake R^1 will be moved outer end of the platform with a comparatively slow movement. the rake R^1 reaches the outer end of the platform, the cam U actuates the rod T, and the guides P P are turned sufficiently to the rake R^1 to assume a horizontal position, and return as de- l above.

inventor says: I do not claim a reciprocating rake operated by ds attached to a pulley M, having a reciprocating rotary motion, ective of the mode of operating said pulley, and the arrangement rake.

I *claim* the disk J, with teeth *a b* attached and gearing into a pinion he shaft K of the pulley M, in combination with the cam U, rod T, ides or ways P P, between which the slide R, to which the rake ched, moves.

above parts, being arranged and operating as shown, for the e specified.

,131.—WILLIAM WHITELEY, jr.—*Improved Raking Attachment Harvesters.*—Patented November 25, 1856.

he machine is drawn along, the rod H is moved back and forth he platform by crank F and pitman I, the rod H working from nt of attachment to the main frame, that point being the centre ion. As the rod H is moved backward the teeth *c* rake the off the back end of the platform B, the rod and teeth being raised elevated outer part of the plate J, so that the teeth are disen- from the grain and do not interfere with its proper discharge ne platform. As the rod H passes forward it catches into the lever K which throws bar H upward, preventing the teeth *c* oming in contact as the grain falls upon the platform.

m.—The combination of the balance lever K with plate J, for ing the rake H *c* in its forward motion, in the manner and for rpose set forth.

,183.—A. H. CARYL.—*Improved Raking attachment to Harvest-* -Patented February 5, 1856.

nature of this improvement will be understood from the claim graving.

inventor says: I do not claim a reciprocating rake placed under- the platform C, for that has been previously used; but I *claim* ing the rake, that is, the rod E, provided with teeth *b*, by means weight I and pully G; the weight and pully being connected to l E by chains F, and otherwise arranged, substantially as shown scribed.

No. 15,751.—JESSE WHITEHEAD.—*Improvement in Self-acting Rake for Harvesters.*—Patented September 16, 1856.

In figs. 1 and 2 the rake is in position, just in rear of the cutters, to commence the gathering of a gavel; the latch O being down in the catch P, the arm I cannot move. As the pinion H turns, it draws, by means of the lever K, the carriage J and rake L with it along on the arm I, said rake forcing the cut grain along against its fellow M. This motion continues until the projection *b* strikes underneath the latch O and raises it out of the catch P. The arm I is now released, and swings around a quarter of a circle by the action of the lever K, until its end passes the spring latch R, (as shown in dotted lines in fig. 1) when it is again locked, and the rake L is now ready to release its gavel and return back along the arm I, which it does by the reverse action of the pinion H, until projection *a* strikes against and pushes away the spring latch R, which again releases the arm I, and it immediately swings around into its former position and ready for the next operation.

Claim.—The combination of the swinging arm I and travelling carriage J, moving together and independent of each other, by means substantially such as described and for the purpose set forth.

I also claim the locking-arm I, at each end of its transverse movement, so that the rake cannot swing around while the carriage J and rake L reciprocate together and discharge the gavel, substantially as described.

No. 15,387.—SILAS G. RANDALL.—*Improved Self-Raker for Harvesters.*—Patented July 22, 1856.

The general construction of this machine needs no especial description, it being represented in the illustrations sufficiently for the present purpose. The carriage F bearing the shaft G of the rake H by means of the eyes g^1 and g^2, can move upon the ways e^1 by means of the friction rollers *f*. The eye g^2 is provided with a projection, against which the rake-arm h^1 comes in contact, and thus prevents the rake from falling below the platform when it traverses beyond it. The roller i^1, in connexion with the roller i^2, carries a belt I, upon which is an eye J which receives the arm h^1, and thus gives motion to the rake H and its carriage F. The eye J following the belt descends around the roller i^1, depresses the rake-arm and elevates the rake to a right angle with the platform. The rods k^1 are attached to a head K carried by a slide L beneath the platform; the rods k^1 are pushed over the gavel space *b* as the rake advances, and the latter compresses the grain on said rods against the spring guard M; and as the rods recede, the grain drops to the ground.

Claim.—The railway carriage F, when constructed, arranged, and operated in respect to the platform B, substantially as and for the purpose set forth.

Also, the described method of operating the rake H, and giving it once its traverse and its tilting actions, viz: by the combination with

the bent rake-shaft G and arm h^1 of the endless belt I and its eye J, operating as and for the purpose set forth.

Also, the combination of the traverse rake H, the spring rods h^1, and the pressing guard M, substantially as and for the purpose set forth.

No. 14,784.—JOHN T. WHITAKER.—*Improvement in Self-Rakers for Harvesters.*—Patented April 29, 1856.

Motion being communicated to the shaft G, the crank-cam *e* revolves and causes the crank pin that works in the slot *o* to push the crank-lever I outward, carrying with it the connecting rod J and rake E, until the cam has traversed the whole length of the lower concave, at which point the rake F will have travelled over the entire length of the platform N, and deposited the grain in a bundle upon the cradle L.

The cam now begins to press upon the upper concave of the cam yoke H, raising it, which causes the shaft E to rotate upon its axis, throwing the rake round and clear of the platform. As the cam yoke is raised, it drags up the connecting rod *h*, which causes the cradle L to rotate backwards, dragging its fingers from beneath the grain, which is stripped off them by the stationary teeth M. Simultaneously with this movement of the cam yoke does the crank pin *e* press the lever I inwards towards the platform N, causing the rake F, in conjunction with the rotary motion of the rock shaft E to recede over the dotted line 1, 2, 3, 4, until the cam *e* again begins to press against the lower concave, causing the rock shaft E to turn until the rake is brought into the same position from whence it started.

Claim.—1st. The rock shaft E in combination with the rake F and connecting shaft J.

2d. I claim, in combination with the rack F, the cradle L, when operating in the manner and for the purposes set forth.

3d. I claim the method of adjusting the rake F, so as to enable it to rake from platforms of different widths of cut, substantially as described

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No. 14,861.—HUGH FORESMAN.—*Improvement in Self-Raking Attachments to Harvesters.*—Patented May 13, 1856.

The apparatus by which the raker is operated is attached to the reaper in such a manner that its top constitutes in itself the platform of the reaper, on which the cut grain falls. The teeth of the rake project through the platform, (which has been removed in the drawing,) and move in circular slots in said platform.

The operation will be readily understood from the engraving.

Claim.—The combination of the wheel D, adjustable crank E, slotted rake F, and the guides or ways *g m* for giving the rake its traversing and rising and falling motions, substantially as herein described.

No. 15,084.—J. C. Pluche and L. C. Pluche.—*Improvement in Attaching Teeth to Sickle-bars of Harvesters.*

The nature of this invention will be understood from the claim and the engravings.

Claim.—Attaching the teeth D of the sickle to the bar C by the cleats *c*, secured to the back ends of the teeth, the cleats *c* being fitted in a groove *b* in the bar C, substantially as shown.

No. 15,926.—Pells Manny.—*Improvement in Sickles for Harvesters.*—Patented October 21, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

The inventor says: I do not claim the employment of back cutting teeth on the cutter-bar, and operating between the cutter and finger bars, and over the fingers, whether the same be formed by the extension of the front cutters or be separately attached at their base ends to the cutter-bar.

But I *claim* as an improvement in the cutting apparatus patented to Henry Green, March 21, 1854, the arrangement at the back of the cutter-bar C, and for reciprocating operation with it, of a back set of cutters or clearers *e* between the finger and cutter-bars, when said teeth *e* are shaped and arranged to cut laterally forwards alternately in opposite directions through or over the backs of the fingers for joint action with the front cutter or cutters *d*, for the better clearance of the fingers and cutter-bar race, essentially as set forth.

No. 16,052.—George F. Foote.—*Improvement in Machines for Harvesting Grain.*—Patented November 11, 1856.

The operation of this machine is as follows: As the apparatus is drawn through the standing grain, the gathering bars P embrace the grain which is before the machine in two separate parcels, and bring it to the openings E^1 which are in front of the threshing cylinder A^3 in the case F; there the pins *c* and scrolls C force it between the concave *g* and the cylinder A^2, and the teeth of said cylinder comb off the grain, while the straw is discharged through the openings G in the rear of the cylinder. The grain is carried upwards by the threshing cylinder into the passage E, and passes down the box D to the screen H, whence the grain drops into the box Z, while the broken heads pass off into the box Y.

Claim.—The peculiarly constructed scroll cylinder A^2, in combination with the cylinder case F and the gathering wheels M M, when the same are constructed and arranged to operate in relation to each other and the main frame A, in the manner and for the purposes set forth.

No. 15,569.—Larkin L. Moore.—*Improvement in Harvesting Machines.*—Patented August 19, 1856.

The frame *a* of the harvesting machine can be adjusted for cutting

lower by operating the screw-winch F, which works in a nut
l in the body of the tongue D. The tongue is connected to
e by means of the pivoted hounds E and a standard C, the
:he latter passing through a slot *f* in the tongue D. Thus, by
he screw-winch the frame A will be raised or lowered, while
ıe remains in the same position as before,
—Adjusting the frame on its supporting wheels for cutting
lower, by uniting the frame and tongue by means of the pivoted
, screw-winch F, and pin *a* passing through a slot in the rear
ngue into the standard C, the above parts being arranged and
; in the manner and for the purposes set forth.

59.—JOEL Y. SCHELLY and JOSEPH STAUFFER, assignors to AM WATSON.—*Improvement in Harvesting Machines.*—Patented nber 2, 1856.

ıture of this invention will be understood from the claim and
g.
ventors say: We do not claim the supporting of the frame of
:er on two main wheels, in the manner of a cart, with a caster-
front of them; as the frame of a harvesting machine patented
rd Badlaw, jr., on the 18th day of September, 1835, is thus
d.
e *claim* the combination of the driving wheel E, supporting
caster-wheel L, hinged-tongue K, and the main frame, when
parts are arranged and operate in relation to each other in the
ıerein set forth.

59.—WILLIAM A. KIRBY.—*Improvement in Harvesting Machines.*
ented September 2, 1856.

and C constitute the parts of the frame to which are attached
ıe D, cutter E, and driving wheel K. The plate H, which
ıed to hub I, can be made to swing on the pivot G, and
means of a flange *e* in a groove of the rim L. The driver's
connected with the plate H by means of a rod pivoted to it
ıd thus when the frame swings the seat R swings with it, and
:emain always in a parallel position.
—The combination of the main wheel K, single plate H, and
hen connected and operated together in the manner and for
ose as described; I also claim the hanging the seat to the plates
o the standard S, as described.

48.—GEORGE W. TOLHURST.—*Improvement Harvesting Ma-*
—Patented September 16, 1856.

riving wheel A is provided on its inner rim with projections
to said rim, which work through the angular slot *j* of the

the top of the fan case, in connexion with the vertical trunk B^1, as herein described, and for the purposes specified.

5. The valve F operated in the manner described, in combination with the chimney O, for the purpose specified.

No. 15,985.—WILLIAM H. SMITH.—*Improvement in Machines for Husking Corn.*—Patented October 28, 1856.

Motion is imparted to the disk wheel C, endless apron L, and brush cylinder A^1, by rotating shaft B. The ears of corn pass down between the apron L and the disk wheel C, and the husks are stripped from them by the teeth on the apron and wheel. The apron L is allowed to yield according to the size of the ears by means of the springs N, which have sufficient elasticity to allow the ears to pass down between the apron and wheel without causing the corn to be shelled from the ears. The brush cylinder A^1 strips the husks from the teeth *a* of the disk wheel.

Claim.—The combination of the toothed disk wheel C, elastic endless apron L, and brush cylinder A^1, arranged and operating conjointly, as shown, for the purpose specified.

No. 16,008.—HARLAN P. GERRISH.—*Improvement in Machines for Husking Corn.*—Patented November 4, 1856.

The ears of corn are placed upon the inclined plane F, and motion being imparted to the husking cylinder C, the stalk is first separated from the ear by the action of the knives I and K upon each other, as represented in fig. 1. The husking teeth *b* then separate the husks from the corn without injuring the latter; and as the husking cylinder keeps on revolving so as to come into the position of fig. 2, the husked corn drops down the inclined plane F, through the space between F and C.

Claim.—The use of the hooks *b b*, or their mechanical equivalents, arranged and made to operate essentially as described, in connexion with two knives I K, for the purpose of cutting off the stalk of an ear of corn and removing the husks therefrom.

Also, making the cylinder C, with the depression *c d e*, for the purpose as described.

No. 15,047.—OREN STODDARD.—*Improvement in Machines for Husking Corn.*—Patented June 3, 1856.

The stripping-rollers are formed of two parts *f g:* the parts *f* are permanently attached to the shafts L; but the parts *g* are placed loosely on the shafts, and have spiral springs *h* bearing against them; the springs *h* being placed on the shafts L L. *i* are flanches of India-rubber, for the purpose of stripping the husks from the ear.

The operation will be understood from the engravings.

Fig. 2 shows how the ears are cut from the stalks.

ı.—The two stripping-rollers, constructed and arranged as in combination with the cutting device formed of the gate or f, with the knife P attached, and the stationary knife Q on the ı N, the frame M being operated substantially as shown, whereby ts are stripped from the ears, and the ears cut from the stalks. her *claim*, in combination with the stripping-rollers and cutting- the rollers W W, by which the ears are fed or guided into the spout Y.

)23.—JOSHUA PERKINS.—*Improvement in Machines for Husking* —Patented November 4, 1856.

)peration of this apparatus is as follows: The ear of corn is sed with the butt foremost through the aperture *g* into the trough to present the ear in a proper manner to the chisels A B. hen being imparted to the shaft H, and the frame E being at est elevation, the roller *i* forces back the bolt S, the frame E sels A B descend, and the chisels will pierce the stalk and it from the ear. By the continued movement of the gear *o* roller *i* the chisels will be forced simultaneously apart, so as ate the husk from the ear and to press both in opposite direc- iving the ear out at the opening *g*, and the husk through the *h*.

.—The improvement of so operating the two cutters or chisels B that, during their descent into the stalk of the cob, they is into it in contact with each other, so as to pierce but one hole, reafter receive a lateral motion simultaneously in opposite is, so that, while one chisel or cutter is made to discharge the m the machine, the other is caused to discharge the ear there- the manner described.

)01.—JOHN TAGGART and LEONARD A. GROVER, assignors to iselves and E. W. BANKER.—*Improvement in Machines for Husk- rn.*—Patented December 9, 1856.

erating this machine, an ear of corn, with the husk thereon, is between each set of jaws E when they are passing over the art of drum B. In passing by the drum B, the jaws will close and grasp the ear of corn firmly. During the downward nt of the carrier the stalk will be separated from the ear by f the rotary saw F, and the ear, with the husk thereon, will be ed into the inclined grate P. The teeth of the drum R, passing the grate P, will seize upon the husk and draw it between the rs, and thereby separate it from the ear, which will be dis- at the lower end of the inclined grate P.

.—The combination of the endless receiving and discharging constructed as described, the rotary cutter or saw F, the inclined pout P, and the tooth-drum R, as arranged and made to operate , substantially in manner and for the purpose as specified.

No. 14,404.—JACOB J. MANN.—*Improvement in Mowing Machines.*—Patented March 11, 1856.

The nature of this invention consists in the peculiar manner of hanging the reel of the machine, whereby the cut grass is allowed to pass over the cutter-bar without any obstruction caused by the supports of the reel.

Claim.—The construction of the reel frame I J K K, the same being braced by the rod L; and the suspension of the reel E, at the outer extremity of the shaft G, by the pendant L.

No. 14,445.—SAMUEL COMFORT, jr.—*Improvement in Mowing Machines.*—Patented March 18, 1856.

The bar C and plate Q form a passage *f*, which communicates with the interior of the boxes D and B. An endless chain formed of angular cutters *d* and links *h* traverses the passage *f*, so that the cutters shall pass between and be guided by the lips *e* and by the cover-plate Q, which is attached to the bar C.

I do not desire to claim the use of endless chains of cutters for mowing machines, nor any particular method of constructing such chains.

But I *claim* the employment in mowing machines of an endless chain of cutters which shall traverse along the cutter-bar, and a sufficient distance above the same to allow the mown grass to drop between the said chain, being operated substantially in the manner set forth.

No. 14,961.—WILLIAM F. KETCHUM.—*Improvement in Mowing Machines.*—Patented May 27, 1856.

The nature of this invention consists in providing the means of raising the cutter-bar of mowing machines from the ground, so that the weight of the cutter-bar shall act upon a wheel and the machine may be easily moved when not in operation.

The inventor says: I am aware that Horace L. Emery, of Albany, has heretofore used an adjustable arm with a wheel thereon at the outer end of the cutter-bar behind the shoe, for the purpose of elevating and depressing the cutter-bar at pleasure to adapt it to working or travelling; and that a similar arm and wheel for a similar purpose have been placed at the inner end of the cutter-bar behind the shoe. These I do not claim.

But I *claim* attaching anywhere between the shoes to the back part of the cutter-bar A of a mowing machine an adjustable and jointed lever F B, either with or without a wheel, for the uses and purposes herein described.

No. 14,898.—JONATHAN F. BARRETT, assignor to ABRAM B. & JONATHAN R. BARRETT.—*Improvement in Mowing Machines.*—Patented May 13, 1856.

The front of the guard P conforms to the shape of the saws, and is furnished with teeth *h*, to prevent clogging. Behind these teeth the

guard is so formed as to consist of a rim *r*, enclosing the space occupied by the gearing. Fitting against this rim, and passing between the saws C and their pinions *a*, close to the saw and pinion connexion, is the covering plate *m*, forming the top of the chamber occupied by the driving mechanism, and excluding the cut product therefrom.

The inventor says: I make no claim to the rotary cutters, nor to the gearing driving them; but I *claim* the combination of guard plate P, covering plate *m*, and saw connexion to pinion, whereby the driving mechanism is effectually excluded from foreign matter.

No. 14,874.—C. M. LUFKIN.—*Improvement in Mowing Machines.*—Patented May 13, 1856.

As the shaft F rotates, the bevel wheels *d* will rotate the upper cutters D in one direction, while the bevel wheels *e* will rotate the wheels and lower cutters D^1. The grass passes between the fingers L and is cut by the cutters, the teeth operating like shears; and the cut grass is carried over the cutting device by the endless aprons J, and falls on the ground back of the cutters.

Claim.—The employment or use of the endless aprons J, in connexion with the rotating cutters D D^1, arranged as shown, for the purpose specified.

No. 15,160.—CORNELIUS AULTMAN and LEWIS MILLER, assignors to BALL, AULTMAN, & Co.—*Improvement in Mowing Machines.*—Patented June 17, 1856.

The connexion of the cutter-bar R is affected by hinges F F^1, braces B and C, hinges E E^1, and brace G. The cutter-bar can thus be raised and lowered so as to adjust itself to the unevenness of the ground, and can also be raised up entirely, and fastened to the machine after the work is finished.

The inventors say: We do not claim connecting the cutter-bar to the machine by a hinge-joint, nor do we claim the joint at or near the extremity of the cutter-bar; but we *claim* connecting the cutter-bar to the machine by the double rule joint, or the double-jointed coupling piece B C in the manner and for the purposes set forth.

No. 15,354.—JOHN W. THOMPSON.—*Improvement in Mowing Machines.*—Patented July 15, 1856.

The nature of this invention consists in the arrangement of the frame and sustaining arm *q* with the driving wheel A, by which the cutter-plates *r* can be operated in a box *o n* attached to the rear ends of freely vibrating hinged arms K *l*, which allow the cutter-plate box to rise and fall as the surface of the ground varies, for the purpose of keeping the points of the cutter-teeth at the proper distance from said surface.

Claim.—Connecting the cutter-plate box O M to the after ends of freely vibrating arms K *l*, in combination with the rectangular frame

v and the inwardly projecting and sustaining arm *g*, when the said parts, together with the cutter-plates and their gearing, are arranged in relation to the main wheel A, substantially in the manner herein set forth.

No. 15,507.—EPHRAIM BALL.—*Improvement in Mowing Machines.*—Patented August 12, 1856.

The cutter-bar D is connected with the frame A B of a mowing machine by means of the braces E C, which are hinged to the frame and cutter-bar, in order to permit the latter to be raised. The manner of uniting brace C, cutter-bar D, and plate L is represented in fig. 2; projection *g* fits into notch *e*, and *d* into *f*, *h* on the under side of plate L into *m n*—the connexion forming a lock fastening to prevent the cutter-bar from working loose in consequence of the strain upon it.

Claim.—The lock fastening for such cutter bar, made by the removed and upset portions of the brace and the extremity of the cutter-bar, as set forth.

No. 16,274.—ANDREW M. HALL.—*Improvement in Mowing Machines.*—Patented December 23, 1856.

The driving-wheel C transmits rotary motion to the crank-shaft F, and thence by means of short pitman *f* to rock-shaft G, which causes pitman H to vibrate and operate the cutter-bar.

The inventor says: I do not claim hinging the cutter-bar to the main frame by a hinge connexion, in order to enable the said bar to accommodate itself to the ground it may pass over.

I *claim* operating the pitman H by means of the mechanism described, when the same is constructed and arranged in the peculiar manner and for the purposes set forth.

No. 14,070.—GUSTAVUS STONE.—*Improvement in Blades of Mowing Machines.*—Patented January 8, 1856.

These blades can be cut from the sheet steel with little waste, and the clearing space J is larger than when a hole is punched through.

I do not claim the invention of mowing machines, or of the several parts thereof, generally; but I *claim* making the sections of which the grass cutting blades are usually made of two pieces of steel, A and B, with but one cutting edge D upon each, and so placing them upon the bar C that there shall be a wedge-shaped opening J between the backs, closed at the points, and widening out towards the bar.

No. 15,203.—WALTER A. WOOD.—*Improved Dividing Shoe for Mowing Machines.*—Patented June 24, 1856.

The point *a* of the shoe divides the grass that is to be cut from that which is to be left standing—that which is to be cut being bent over by the shield portion *i*, in proper position to be reached and severed by the sickle.

Claim.—The particular form and construction of a dividing shoe for mowing machines, by means of which the grass on either side of it is divided and bent over without breaking or crushing, so that the sickle will reach it all, and thus prevent "combing or ridging."

No. 16,247.—JEREMIAH W. MULLEY.—*Improved Mowing and Reaping Machine.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claims and engravings; the arrangement of the parts mentioned in the second claim, serves for raising and lowering the cutting apparatus by operating lever 2.

The inventor says: I do not claim placing the platform lower than the wheel frame. Neither do I claim the large driving-wheel in connexion with an elevated main frame.

I *claim* connecting the frame of the platform with the frame carrying the driver's and raker's seat, in the manner substantially as set forth, namely, securing the relative position of the frames by means of the brace J in the rear, and the laterally inclined draw-shoe K in front, when the above parts are constructed and arranged as described.

I also claim the rod 4 and the rails 5, connected in the manner described, in combination with the pole N, the rocking-shaft 3, and the lever 2; the whole being constructed, arranged, and operated in the manner specified and for the purpose set forth.

No. 15,338.—MOSES G. HUBBARD.—*Improvement in the Frames of Mowing and Reaping Machines.*—Patented July 15, 1856.

This invention consists in the mode of constructing the parts connecting the driving-wheel with the cutting parts. A cone-shaped metal tube *a* is formed, having a depression on its upper side along which the axle a^1 of the driving-wheel *b* lies, attached to it by bearings *c*; thus the tube *a* is suspended under the axle, and projects downward nearly to the ground, having secured at the lower end the finger-bar *f*. An iron step or brace *g* is formed in the tube *a*, to which the finger-bar can be attached when it is required to raise it; the brace *g* also serves to strengthen the tube *a*.

Claim.—The cylindrical conical-formed metallic frame, as a support for the running gear and finger-bar, when constructed, arranged, and combined therewith in the manner and for the purpose set forth.

Also, in combination with said cylindrical or conical metallic frame the step or brace-frame *g*.

No. 14,631.—E. P. LACEY.—*Improvement in Corn Planters.*—Patented April 8, 1856.

The nature of this invention consists in so constructing the machine that the driver can, by a slight pressure of his foot, drop the requisite quantity of seed at such distances apart as he may desire.

Claim.—The combination of the seat S with the treadle or foot- *f*, rod *r*, bar *m*, and rack and pinions P P; the whole operating i manner and for the purpose set forth.

No. 14,776.—SILAS G. RANDALL.—*Improvement in Corn Plant* Patented April 29, 1856.

In moving the lever B to the position shown in dotted lines, t F is moved aside from the mouth of the tube E, letting out the The slide H is moved upward by the connecting-rod C, and the uring cavity *h*, being above the brush, is filled with seed throug slots. The machine is now lifted from the ground, and the lever turned to its first position, thus causing a descent of the slide, s the seed is discharged below the brush into the tube upon the lid

Claim.—Combining with the seed-tube E a cut-off valve l closing or opening said tube, as the case may be; said valve m edgewise against the soil when the passage is opened to allo grains to pass into the ground, and operated from a lever B, sul tially in the manner and for the purpose set forth.

No. 14,785.—SAMUEL WILT and GEORGE W. ALBAUGH.—*Impro in Corn Planters.*—Patented April 29, 1856.

When the movable portion K has reached the opening throug hopper at *h*, the spring *n* throws its end into a recess *m*, whereb receptacle *g* is enlarged so as to permit the liberation of the seed from with great certainty.

The movement of the slide E is obtained by the arm *p*, the r and crank S.

Claim.—The use of the slide E in corn planters, when provided expanding grain receptacles *g g*, and when the divisions *o o* of the per are provided with strikers P, all operating substantially i manner set forth, for the purpose of preventing the choking, from s ing of seed, and insuring its delivery to the drill tube.

No. 14,801.—REINHOLD BOEKLEN.—*Improvement in Corn Plant* Patented May 6, 1856.

The continued descent of the seed box A brings the inward clined upper parts of the covering plates E E into contact wit inclined upper portions of the projections *n n*, and causes the pa to be thrown outwards, and the lower parts to be thrown in towards the plunger tube D, and to grasp a quantity of earth bet themselves and the plunger tube; and it eventually brings the s catch over the notch *o*, and locks the plunger tube to the seed During the lifting of the seed box with the plunger tube locked the seed passes into the ground, and the earth *q q* is lifted until a sho *r* comes in contact with and forces out the spring catch *p*, so as t erate the plunger tube, which falls by its own weight; and its proje

n n in passing the centres of motion *i i* of the covering plates, throws out the lower parts thereof and releases the earth, which falls back into the hole in the ground just as the plunger valve begins to be lifted by the stop *b* acting on the pin *k*, and covers the corn which has been deposited.

Claim.—The employment of one or more covering plates E E, applied in connexion with the seed box or tube and plunger, and operating to lift a quantity of earth and deposite it over the corn which has been planted.

No. 15,322.—Moses Bemis.—*Improvement in Corn Planters.*—Patented July 15, 1856.

The nature of this invention consists in attaching the frame of the machine to the axle and wheels by using bearings, as represented at N, which facilitate the operation of the machine in passing over inequalities of the ground; and also connecting the point of draft behind and below the axle at M, for the purpose of counteracting the downward pressure forward, and to facilitate regulating and governing the depth of planting by raising and lowering the frame A by means of the arm O and pins as connected with the tongue.

Claim.—Arranging the frame upon the axle and wheels, and connecting the point of draft behind and below the axle, and in combination with the arm O and pins.

No. 15,426.—James D. Jeffers, Joseph Sparks, and John H. Jeffers.—*Improvement in Corn Planters.*—Patented July 29, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventors say: We do not claim the tubes H H, nor do we claim operating inclined planes and vents together in a corn dropping box irrespectively of the peculiar construction and arrangement of the same, as described; nor do we confine our claim to any number of boxes A upon one carriage, nor to any number of dropping vents in each box.

Claim.—1st. The moving inclined planes *l l* and springs C C, when constructed and combined so as to operate together within the grain-adjusting recesses E E, substantially as and for the purposes set forth and described.

2d. The stationary inclined planes D D, when operating in combination with the said recesses E, substantially as and for the purpose set forth and described.

No. 15,755.—Malender Bates.—*Improvement in Corn Planters.*—Patented September 23, 1856.

In working this machine, the operator drops a hill at his pleasure from the valve *n*, by simply gripping the hand-lever with the right hand, when the spring *s* on the end of the axis *e* reverses the motion, which shuts the valve *n* and drives the wheel *l* far enough to discharge the

next succeeding aperture filled with the seed into the orifice tube.

The inventor says: I do not claim the application of a valve bottom of a tube.

Neither do I claim the construction of a tube for the purpose veying seed from the hopper to the ground; for these principle been variously applied, for the same purpose, in various machi

Nor do I claim operating an axis by means of a hand-lev spring attached to the handle of seed planters; for these, alsc been used in other machines, to effect different purposes, such a ing slides, reciprocating plates, and opening apertures.

But I *claim* the rotating ratchet-wheel *r*, provided with feedin tures, in combination with the wire-screen *w*, or its equivale spring pawl *m*, guard-pin *i*, and wire button *o*, acting in the and for the purpose described.

No. 14,134.—JOHN M. JONES, assignor to NEWTON FOSTER.—*I ment in Cotton-Seed Planters.*—Patented January 22, 1856.

As the disk D revolves, its ratchet-teeth W act upon arm U, ing from rim I, and thus impart a vibratory motion to said rim seeds being placed in the hopper, the flexible arm G force through the cavities in disk D, the arms on the rim I taking th as they pass through; the disk D and arm G having a reverse the arm G passes each cavity twice every revolution; hence the sity for double the number of arms on rim I that there are cav the disk, which arms are so arranged with respect to arm G soon as the said arm forces a seed through a cavity, (where it be liable to hold by its fibre,) an arm on rim I removes it, and bratory motion of the rim and its arms causes its immediate tion.

Claim.—The disk D, constructed with exit apertures K, cav and ratchet W; and, also, the vibrating rim I, with flexible thereon; the said disk being rotated upon said rim in combinatic and in opposite direction to, the flexible arm G, in the manner the purpose set forth.

No. 14,240.—J. L. HORN.—*Improvement in Cotton-Seed Planters* ented February 12, 1856.

The inventor says: I do not claim a distributing wheel runnir the ground, nor do I claim projecting rims or flanges upon such tributing wheel.

But I do *claim* the arrangement of the back and front gu C², in combination with the distributing wheel A, provided w flanges B B and chargers C C, placed at proper intervals, so seed can escape below the horizontal line X X, except at the or lowest point I, immediately in the rear of the opener E.

No. 14,529.—A. W. WASHBURN.—*Improvement in Cotton-Seed Planters.*—Patented March 25, 1856.

The channel-former F is connected to the set screws *b b*, in such a manner that it can be made to project more or less from the under surface of the ridge-former C. *i* is a perforated moveable band that serves to regulate the size of the discharging apertures; K is the hopper; M M are covering spurs; B is a roller to reduce the crown of the ridge to a smooth rounded form.

Claim.—1st. The peculiar shape and arrangement of the ridge-former C and the adjustable channel-former F, by which their forward movement enables them, when suitably loaded, to unerringly form a perfectly smooth channelled ridge, substantially as herein set forth.

I also claim the combination of the inclined flanches K K with the inner periphery of the rotating seed-dropper G, when they are placed in such positions with relation to the discharging apertures, and have such a degree of inclination, that the said flanches prevent the seeds from being discharged out of the front (or descending) side of the said seed-dropper, and cause the seeds to be freely discharged through the apertures in the rear (or descending) side of said seed-dropper in view of the operator, substantially as herein set forth.

No. 15,260.—J. A. STEWART.—*Improvement in Cotton-Seed Planters.*—Patented July 1, 1856.

The cotton seed is placed within the hopper or wheel G, and as the implement is drawn along, the hopper is rotated and the seed passes through the slots *d* into the furrow made by the share E, the seed being covered by the share F. The rod or spike H prevents the slots from being choked with the seed by forcing the seed therefrom, in case of any sticking in them.

The inventor says: I do not claim a rotating hopper or distributing wheel, irrespective of the form herein shown, for they have been previously used; but I claim the hopper or wheel G, formed of the discs *a a*, and zig-zag rim *b* provided with slots *d*, substantially as shown for the purpose specified.

Further, the hopper or wheel G, in combination with the clearing rod or spike H, arranged as shown and described for the purpose set forth.

No. 15,640.—D. I. BEECHER.—*Improvement in Cotton-Seed Planters.*—Patented September 2, 1856.

An endless conveyor C, made up of a series of plates *p*, armed with rows of teeth *t*, passes around the shafts S S^1 underneath the hopper H, which contains the cotton seed. The conveyor carries the seed downward into the tube T, whose rear upper extremity is provided with a series of slots *d*, as represented in figure 2. The teeth *t* of the plates *p* pass through the slots *d* and effect the delivery of the seed into the

tube; the passage of the teeth through the slots preventing the seed from being carried around with the teeth by the adhering of the fibres remaining upon the seed to said teeth.

Claim.—The combination of the endless series of arranged plates with the slotted discharge tube, constructed, arranged, and operating substantially as and for the purposes set forth.

No. 15,918.—CHARLES R. BELT.—*Improvement in Cotton-Seed Planters.*—Patented October 21, 1856.

As the machine is moved forward, the bar *f* is caused to oscillate on its centre, the connecting rod *g* on the end of said bar being operated upon by the gearings *m* and *h*, and the inclined bottom plates *a* a^1 are caused to vibrate, they being connected to bar *f* by means of the rods *e*. The rollers F and G, armed with pins *l*, prevent the seed in the hopper from packing, and deliver the seed to the bottom plates *a* a^1, whence it is discharged, and drops into the furrow made by the point *r*.

Claim.—Effecting the seed discharge by the opposite reciprocation of the inclined plates *a* a^1, constituting the bottom of the hopper, in combination with the armed rollers, or their equivalent, arranged and operating substantially as and for the purposes set forth.

No. 14,504.—WILLIAM JENKS.—*Improvement of Hand Corn-Planter.*—Patented March 25, 1856.

The feed-slide A is so arranged as to distribute the seed at B. When the plunger is drawn up, the seed falls into the chamber D. The plate C, with the notched chambers *h*, deposites the seed into the ground.

Claim.—The bolsters E and distributer F, in combination with point C, when arranged and operated for the purpose herein specified.

No. 15,035.—SAMUEL L. DENNEY.—*Improvement in Hand Corn-Planters.*—Patented June 3, 1856.

When the cylinder C is in the position shown in fig. 2, the weight of the pistons *a a a a* will cause them to drop and form cups above the upper ends of *a* for the reception into each of a kernel of corn. A brush B shuts off the space above the cylinder from the four-way funnel F.

When the said cylinder is turned upon its axis to carry the seed-cups under and beyond the brush B, the projecting ends of the pistons *a a a a* will strike against the cam L, and be forced inwards a sufficient distance to project the kernels of corn from the respective seed-cups.

When the slides E E and the handle A are elevated to their highest position, the said movement will turn forwards the cylinder C to discharge the kernels of corn from the seed-cups, and will elevate the piston-rods P P to enable the kernels of corn to fall into the planting receptacles. The downward movement of said slides and handle will

ause the piston-rods *a a* to descend and open the pouch pieces of the lanting receptacles and discharge therefrom the kernels, and at the ame time the cylinder C will be thrown into the position shown in ig. 4 to receive another charge of corn into the seed-cups *a a a a*.

Claim.—The combination of the planting cylinder C, the pistons *a a*, and the funnel F.

No. 15,114.—GEORGE ATKINS.—*Improvement in Hand Corn-Planters.*—Patented June 17, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—Attaching the plate E, by a hinge or joint, to the lower part of the box A, the plate E having a curved plate G attached to its inner side, which plate is provided with a hole *g*, and works over the curved portion *a* of the plate D, which is attached to the lower end of the box A; the straight portion *b* of the plate D being fitted and working between plates *c c*, attached to the plate E, substantially as herein shown and described, so that the distributing device may be operated by merely throwing forward the box A.

No. 15,616.—CORNELIUS MARTRATT.—*Improvement in Hand Corn-Planters.*—Patented August 26, 1856.

By pressing the handle H downward, the hopper *a b* is made to slide down the shaft A C to the screws *i i*; the recess *e* is filled with corn, and by drawing the machine upwards, the hopper is also drawn upwards, and the seed in the recess *e* is discharged into the recess *f*. By placing the spade A B again upon the ground, and pressing downward, the cavity *f* passes down, and discharges itself through the orifice E into the hollow of the staff A C; the time of this discharge can be regulated by adjusting the set-screws *i*; and thus, when the spade A B penetrates soft or hard ground, the discharge of the grain can be regulated according to the time necessary to penetrate the ground.

Claim.—The combination of the staff A C, collar *g*, and spade A B, with reservoir *a a b b*; the whole being arranged and operated in the manner, and for the purpose described.

No. 15,696.—HEMAN B. HAMMON.—*Improvement in Hand Corn-Planters.*—Patented September 9, 1856.

As the plunger C descends, it forces seed which may be in the seed tube A into the soil, and at the same time causes the wheel E to turn one-sixth of a revolution, and to deposit the seed contained in the offset a^4 into the end of the tube for another descent of the plunger.

Claim.—The employment of an hexagonal or many-sided revolving wheel E, having offsets a^4 a^4 a^4 a^4 a^4 a^4, applied in connexion with the plunger and seed tube, substantially as and for the purposes set forth.

No. 16,135.—THOMAS A. CHANDLER, assignor to Himself and HARLOW HERRICK.—*Improvement in Hand Corn-Planters.*—Patented November 25, 1856.

The machine being placed on the ground, the handle B is pressed down, which causes the digger R to operate, and the slides E and jaws K move out, and the corn drops into the hole previously made by the digger. As soon as the seed is dropped out of the cup, by raising the handle B, and by the counteracting weight of the machine, the movements of the slides, jaws, and diggers are reversed.

Claim.—The slides C E, diggers R R^1, and rod I, substantially as set forth, and operating in the manner and for the purpose described.

2d. The jaws K K, cut-off S, and arm L, when constructed and arranged as described, and operating substantially in the manner and for the purpose set forth.

No. 14,767.—EDWARD HOPKINS.—*Improvement in Hand Seed-Planters.*—Patented April 29, 1856.

When the block 11 rises, it moves with it the sliding plate 12, being attached to the block by a slot cut through the side of the case. The cylinder 3 is thus revolved by means of rod 6, and the hinged lid 9 is drawn close down to the case by a pin 10, passing through a slot cut in the lid; when the machine is withdrawn, the lid opens and drops the seed. The spiral spring 7 pulls the plate 12 down, and throws up the semi-circular cylinder 3, for receiving another charge of seed in the adjustable vessel 4.

Claim.—The arrangement of the rod 6 and spring 7, combined with the catch-block 11 and sliding plate 12, for operating the semi-circular cylinder 3 and lid 9.

No. 15,431.—A. C. MILLER.—*Improvement in Hand Seed-Planters.*—Patented July 29, 1856.

The rod H passes through the hopper lengthwise, and upon the end of it is a coiled spring *c*, to throw it back after it has been pushed up by the operator against said coiled spring. Upon this rod is fixed a series of agitators I, which travel past the openings *a* of the stationary seed rod B, as the rod H is vibrated by means of the hand-lever J, and thus prevent the seeds from choking in said openings.

Claim.—In combination with the reciprocating agitators I, the stationary bent adjustable seed bar B, with its wedged-shape openings *a* and inclined sides *b*, for the purpose of sowing seed broadcast, and adjusting the machine to the quality or kind of seeds to be sown, as set forth.

No. 15,610.—J. HERVA JONES.—*Improvement in Hand Seed-Planters.*—Patented August 26, 1856.

When this seed planter is lifted from the ground, by taking hold of the levers *a*, it will assume its contracted position, the points *c c*, being

nearest together. The seeding cavity will now have deposited a sufficient quantity of seed for a hill in the discharging recess near *c*; the machine is then struck down, the points expand and enter the ground, until the bottoms of the reservoirs press the surface. This allows the shoulders of the levers *a* to withdraw from their recesses at the top of the slots; and as the pressure of the hands continues, the cap pieces *b b* become fulcrums, the lower section of the points are withdrawn from the ground, and the seed falls into the receptacle thus made. The machine being now lifted, the lower sections of the points are returned upon the seed, the whole machine contracts, and the points are withdrawn from the earth, leaving the seed in the ground.

Claim.—The use of a hinge or joint B B, or its equivalent, for connecting two single hand planters at their tops, for the purpose of allowing them, like a pair of compasses, to contract and expand in their operation, as set forth.

No. 15,433.—JOHN MOORE.—*Improvement in Potatoe Planters.*—Patented July 29, 1856.

The potatoes are placed in the hopper N, and fall into the chambers *a* of the cylinder H, and are discharged from said chambers as soon as the latter have passed the guard M; the helical scrapers *b* serve to remove any pieces which may remain between the cylinder H and guard M.

The inventor says: I do not claim a seed planter wherein there is a furrow opener, a contrivance for dropping the seed, and one for covering the furrow.

But I *claim* arranging and combining with the chambered cylinder H and its spring guards M, so as to operate therewith, as set forth, a series of scrapers *b b*, the same being for the purpose specified.

No. 14,144.—FREEMAN PLUMMER.—*Improvement in Seed Planters.*—Patented January 22, 1856.

The seed cup *z* is formed in the upper part of the slot in slide *f*, by setting the hinge *h* (in the lower part of said slot) so as to form an elbow, the upper part of which, when in this position, forms a bottom to the said cup *z*; when wishing to drop, the aforesaid slide is drawn down, at which time the cup *z* is drawn below the hopper bottom, bringing a solid portion of the aforesaid slide opposite the point at which the seed cup is formed and filled. When in this position, the hinge *h* is drawn straight, allowing a discharge of seed thus measured.

Claim.—The seed cup *z*, as formed by slide *f*, conductor *i*, and hinge *h*, as herein described.

No. 14,235.—ROBERT GEBBY and WILLIAM L. GEBBY—*Improvement in Seed Planters.*—Patented February 12, 1856.

The corn having been placed in hoppers A A, and the machine having been set in motion, the operator at intervals depresses the

hand-lever *q*, thereby elevating the other or trigger end *s* of the lever frame *q* P *r s*. The trigger then actuates levers *t* on their pivots *u u*, so as to depress the strips *z z*, which, being formed with feed vents, carry down the seed. As soon as the operator removes his hand from handle *q*, the strips *z z* rise back to allow the seed receptacle to be charged again with seed. The stirrer or spur pin 14, attached towards the end of the valve-rod, in moving up and down, serves to loosen the supply of seed and prevent clogging. The flap D hinged to fender C can be elevated or depressed by means of adjusting-rod E, so that more or less pressure may be given to the soil.

Claim.—Constructing a corn planter with compound or double graduating or feeding-rod device Z Z Z Z, having a stirrer pin or spur 14, and combined in operation with the actuating lever device P P *q q r r*, formed with the trigger *s s*, and spur V U, and spring-hook or catch device W W and *y y*, constructed and used substantially in the manner described.

2d. The skimmer fender C C, formed with a hinged flap or pressure-plate D D and adjusting-rod E F G H, as described.

No. 14,465.—ELIJAH MORGAN.—*Improvement in Seed Planters.*—Patented March 18, 1856.

A shield *a* is fastened to the front inside part of the hopper D, and extends back, first horizontally, then downward, leaving a space *c* between its lower edge and the bottom of the hopper. The seeding-bar F vibrates under this shield, the grain passing through *c*, thence into the recesses *e* on the under side of the seeding-bar, and through the openings *f* into the ground.

Claim.—In combination with the dead hoppers E E, the chamfering or bevelling of the ends *i* of the seeding-bar F, and the scolloping of the shield *a*, so that any grain that may be carried to the ends of the seeding-bar may be forced by it into said dead hoppers, substantially as described.

No. 15,101.—PLYMON B. GREEN and EDWARD A. KENNEDY.—*Improvement in Seed Planters.*—Patented June 10, 1856.

Fig. 1 represents the planter as being forced down into the ground, with the orifice *o* in seed-slide *b*, which receives the corn at the bottom of the corn box F, and retains it until the machine slides down on seed-slide *b*, when orifice *n*, at the top of groove *m*, comes in connexion with orifice *o*, and the corn passes down to mouth E. On raising the planter from the ground, the mouth E is thrown open, depositing the corn into the ground; the spring C forces down at the same time the slide *b*.

Fig. 2 is a sectional front view, representing side springs *h h* and catches *l l*, which prevent the machine from sliding down on the seed-slide *b* until the mouth is closed.

Claim.—The seed-slide *b*, in combination with the foot A, side springs *h*, and catches *l*, arranged and operating in the manner and for the purposes set forth.

lo. 15,106.—GEORGE A. MEACHAM.—*Improvement in Seed Planters.*—Patented June 10, 1856.

The machine being strapped to the foot, and the seed bag fastened) the waist of the farmer, and combined with the hopper B, the farmer ests his foot upon the ground and exerts pressure upon the step, and auses thereby the plunger E to ascend along with his foot, which forces he seed contained in the spring end of the tube A into the soil. As oon as this occurs he withdraws the pressure, and the slide rises by he action of the spring F, and carries up another hill of seed to be dis-harged into the spring end of the tube ready for the second descent of he plunger.

Claim.—1st. A machine for planting corn, constructed so as to be applied to and operated by the foot.

2d. The employment of the self-adjusting step G, applied in connexion with the plunger and slide E, seed tube or box A B D, and flexible seed conductor C, substantially as and for the purpose set forth.

No. 15,182.—GEORGE HALL.—*Improvement in Seed Planters.*—Patented June 24, 1856.

The nature of this invention is: Each cam F is hinged in a recess on the body of the driving-wheel H in such a manner that it can be turned on a pin *d*, and that the part *b* can be pushed into the recess C, so as not to project from the sides of the driving-wheel H.

Claim.—Hinging the cams F that operate the seed-slides to the face f the drive-wheel H, so that they can be swung into or within recesses cut in the face of said wheel for the purpose of adapting the machine to planting at variable distances apart.

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o. 15,691.—JOHN FORDYCE.—*Improvement in Seed-Planters.*—Patented September 9, 1856.

The seed passes from the hopper A through the apertures *i* and *e*)wn to the blocks *d*, and as the hinged board B^1 is vibrated by means the handle C, the seed is discharged. The size of the openings can e adjusted by means of the slide *f*, which is provided with openings *i*. he finger *r*, attached to the blocks *d*, cause the grain, and in particur oats, to pass readily out of the hopper.

Claim.—In combination with the hopper and its adjustable openings e hinge-board B, and its blocks and figures, for regulating the dis-arge of the grain from said hopper, and insuring regular feeding, bstantially as set forth.

). 15,822.—JOHN F. SEAMAN.—*Improvement in Seed Planters.*—Patented September 30, 1856.

The seed is placed in the hopper M, and, as the machine is drawn)ng, the share T makes the furrow, and the driver causes the seed

to be deposited by operating the rod *l*. The rotary covering shares L cover the seed; those on one side of the frame being stationary while covering the seed, while those on the opposite side are rotating in order that they may free themselves of weeds or grass, &c.; the shares on the two sides of the frame turning alternately, so that all of them may be kept perfectly clean.

Claim.—The shares L, arranged substantially as shown, so that they may rotate intermittently, in order to free themselves of weeds, grass, and other incumbrances.

No. 15,810.—B. KUHNS and M. J. HAINES.—*Improvement in Seed Planters.*—Patented September 30, 1856.

The seed in the hopper H fills the pockets *i* of the rotating cylinder *g*, and the contents of said pockets are discharged in regular succession into cells *a*, whence the seed passes to the seeding tube. The quantity of seed in the pockets *i* is regulated by means of the pocket-clearer R swinging on a pivot *m*.

The inventors say: We disclaim, of itself, the pocketed roller, and also the cells surrounding the discharge openings.

But we *claim* the combination of the cell and pocketed roller with the pocket clearer, actuated by the rotation of the roller, operating as and for the purposes set forth.

No. 15,955.—JOSEPH H. SHIREMAN.—*Improvement in Seed Planters.*—Patented October 21, 1856.

As the machine is moved forward, the slide *x* is reciprocated by means of pitman *h*, which receives its motion from the driving-wheel, at the same time that the seed is prevented from clogging by the movement of the stirrer *n*, operated by levers *u* and *v*. The clearers *n* force the seed which is contained in the holes of the slide *x* out of said holes, thus keeping a free passage for the seed.

Claim.—The slide *x* and clearers *n*, in combination with the stirrer *w*, constructed and operated substantially in the manner and for the purposes set forth.

No. 15,974.—JESSE D. HAVIS.—*Improvement in Seed Planters.*—Patented October 28, 1856.

The seed in the hopper B passes down the inclined bottom and escapes through the aperture *p* into the seed tube F, whence it drops to the ground. The motion of the machine causes the hopper B to vibrate, and the seed to run freely through the opening *p*, the size of which can be regulated by means of the tapering pin *g* and screw *r*, and thus the discharge of the grain can be regulated at pleasure.

Claim.—The vibrating hopper B, in combination with the pin *g*, constructed and arranged substantially in the manner and for the purpose set forth.

o. 16,198.—HENRY WYANT.—*Improvement in Seed Planters.*—Patented December 9, 1856.

As the machine is moved over the ground, a reciprocating motion is nparted to slide H; when the slide moves to the left, the cup *a* is rawn up the inclined plane *m n*, and, passing under the brush M, the urplus seed is scraped off, and as the slide advances further, the cup arrives over the seed tube S, where the seed drops to the ground.

Claim.—The employment of the seed cup or ring *a* and spring *b*, ttached to and moving with the slide H, in combination with the in-:lined plane *m n* of the beam and brush M, operating in the manner nd for the purposes set forth.

No. 16,314.—N. C. SHERMAN and J. MASON.—*Improvement in Seed Planters.*—Patented December 23, 1856.

When the plunger E is drawn upwards, the corn with which the opening *b* is filled passes through the opening b^1 and falls down at the lower part of the jaws B C, which are closed by spring D. The jaws being forced into the ground, plunger-bar G comes down, and, coming in contact with jaw C, causes it to turn on its pivot a^1, permitting the seed to drop into the pocket made by blades B and C.

The inventors say: We disclaim the wedge-shaped jaws, to be opened after having been thrust into the ground, thus forming a pocket or cavity into which the seed may fall. Devices of this kind are old, and an example is seen in Hughes's patent, November, 1855.

We *claim* the double plunger E, having bars F G, operating and combined with the seed box A and jaws B C, in the manner substantially as set forth.

No. 14,533.—MICAJAH CRENSHAW.—*Improved Cultivating Plough.*—Patented March 25, 1856.

The stock F, to which the digging hoes H are fastened, is held down by the springs G G. A cam wheel I is fastened to shaft D. The arm J rests upon the cam wheel for the purpose of imparting a vibrating motion to the stock E.

The inventor says: I am aware that rotating hoes have been used in onnexion with ploughs and cultivators in various forms; this, there-ore, I do not claim. But I *claim*, in combination with the series of utting plates or disks E, the series of reciprocating hoes H, when the oes are so arranged as to work in lines parallel with the cutters or isks, and so inclined downward and rearward as to readily rise up ver any obstructions, without danger of clogging or choking, as set orth.

No. 14,726.—PELLS MANNY.—*Improvement in Sub-soil Ploughs.*

As the implement is drawn along, the coulter G, as it rotates, cuts he furrow slice in advance of the separating wing H; the separating

wing spreads or opens the furrow of the surface soil, while the mould-board D throws up the sub-soil, the mould-board being sufficiently narrow to take up only half of the sub-soil at each ploughing, and being relieved from the weight of the surface soil by the action of the separating wing.

Claim.—The combination of the circular rotating coulter G, separating wing H, mould-board D, and bar F, arranged substantially as shown.

No. 14,013.—George W. Cooper.—*Improvement in Ploughs.*—Patented January 1, 1856.

The nature of this invention can be understood by describing the manner in which said plough can be operated and adjusted. The handles B are secured to the beam A by means of screw bolts *a*; when the plough is raised up or let down by adjusting the stirrup H and bolt *i*, the standard C swings *a c*, and the joint *e* is raised or lowered, and takes up or lets down to the extent of the adjustment, whilst the handles, very slightly moving at *a*, maintain practically their same relative position in regard to the beam.

Claim.—Having thus fully described the nature of my invention, what I claim therein as new and desire to secure by letters patent is, uniting the handles of the plough to the standard thereof by means of the self-adjusting elbow joint *e*, so that both the handles and the plough shall be susceptible of the same relative adjustment to the beam, as described.

No. 10,044.—Benjamin F. Avery.—*Improvement in Ploughs.*—Patented January 8, 1856.

Fig. 2 represents the land side of the plough, the projection *e* of which fits into a corresponding cavity in the short land side represented in dotted lines in fig. 1; the hook *n* is intended to pass through a right-angled opening in the same, and the shoulder *f* of flange *h* to fit into the bottom part of the short land side in fig. 1.

Claim.—The lock joint, for holding the land side to the short land side, and mould-board; the same consisting mainly of a shaped projection *g*, hook *n*, and flange *h*, and their counterparts in the short land side.

I also claim the ears or lugs *d d*, cast on the inside of the mould-board, for the purpose of fastening the mould-board handle.

No. 14,224.—John Clark and George W. N. Yost.—*Improvement in Ploughs.*—Patented February 12, 1856.

By the forward motion of the plough the pressure of the sward on the surface of the circular cutting shares will cause them to revolve around their pivots *e e*, and cut away the earth before them speedily, thereby facilitating the draught of the plough.

Claim.—The revolving share-cutters B B^1, attached to the mould-ard in combination with the bearing-plate or strap D, and the exten-n of the land side (or the equivalent of said bearing-plate D and ension of said land side) for securing the free and certain revolution he series of revolving share-cutters B B^1, substantially in the man-: and for the purpose set forth.

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o. 14,288.—JAMES B. MELL.—*Improvement in Ploughs.*—Patented February 19, 1856.

The nature of this improvement will be understood from the claim d engravings.

Claim.—The standard A with braces B, in combination with the aces I C and beam D, constructed in the manner and for the purpose t forth.

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o. 14,346.—JAMES T. CADENHEAD.—*Improvement in Ploughs.*—Patented March 4, 1856.

The nature of this invention will be understood from the claim and ıe engraving.

Claim.—The adjustability of the brace K, in combination with that the bar O and that of the beam C, for the purpose of regulating the itch of the beam and the height of the beam and handles, together or eparately.

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o. 14,989.—GEORGE W. ZEIGLER.—*Improvement in Ploughs.*—Patented May 27, 1856.

By moving lever *p* towards handle B, arm *m* of shaft *l* will be moved ı slot *i*, pressing against the upper face of said slot, turning the coulter bout *f* by lifting arm *g*, and consequently depressing point *q* of the oulter.

The inventor says: I am aware that Harrison Norton obtained a atent, dated October 9, 1855, by which he regulated the depth of the ırrow by a movable plough point, acting upon the same principle as hat shown in my specification. I do not claim, therefore, to have een the first to invent that method of accomplishing this object; but I laim simply an improvement upon the invention of Norton, by comining with land side E and mould-board C a coulter F, jointed to the land de, and movable between land side and mould-board, independent of ıe mould-board and share D.

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o. 15,137.—N. S. LOCKWOOD and J. D. WINN.—*Improvement in Ploughs.*—Patented June 17, 1856.

By this improvement no bolt-heads are exposed on the outer side of ıe mould-board, and the latter may be hardened so that it will retain s original shape.

Claim.—Welding the post A or breast A^2, to the mould-board B, and attaching the share C and land side C^1 to the mould-board and post, or "breast," by means of the flanch A^1, at the lower end of the post or breast, and the plate C^2 of the share and land side, through which flanch and plate screw-bolts F F pass, substantially as shown for the purpose specified.

No. 15,344.—JOHN RICH.—*Improvement in Ploughs.*—Patented July 15, 1856.

The braces *g* and *h* proceed from the land side, curving backwards and upwards to sustain a piece extending back from the bed piece *b*. This piece carries upon its rear portion the after end of the beam, and contains in its substance the sockets *i* and *k* for the handles *l*. It will be perceived by the drawing that the sockets are cast without setting any cores.

Claim.—The sockets *i* and *k*, when arranged and combined with the body of the plough.

No. 15,321.—ALVIN BARTIN.—*Improvement in Ploughs.*—Patented July 15, 1856.

The nature of this invention consists in attaching the body A of a plough to the coulter B in such a manner, by means of bolts *a* and *d*, as to allow the body to be moved to the right or left, for a side-hill plough or reverse plough, and by confining the body to any desired angle with the beam by a cross-bar F and cam lever G attached to the hind end of the beam, and also by forming the lower end of the coulter into a wedge-shape on which to place a self-sharpening socket-point H, which can be reversed as it becomes worn, and replaced by another one when worn out.

Claim.—I claim jointing the upper and front points of the body of the plane to the coulter, the whole being arranged and operated substantially in the manner and for the purpose set forth.

No. 15,654.—BENAIAH C. HOYT.—*Improvement in Ploughs.*—Patented September 2, 1856.

This plough can be used to turn one or two furrows, and can also be readily converted into a cultivator. To turn but one furrow, the point M is attached to standard A, and the beam D is placed on a line with the land side of the point M. To turn two furrows at the same time, the point represented in fig. 3 is attached to the standard, and the beam and handles are fastened on a line between the two mould-boards K. To convert the plough into a cultivator, the point represented in fig. 2 is fastened to the standard, the mould-boards K are removed by withdrawing the bolts *z* at the top end of the braces R^1 and N, and the short bolts P that pass through the mould-board K in the prongs X are also withdrawn.

Claim.—The adjustable rotary mould-board K K, combined with the beam D and frame R, the whole being arranged in the manner described.

No. 15,649.—JOSEPHUS P. HARRIS.—*Improvement in Ploughs.*—Patented September 2, 1856.

By shifting the bolts *b* to different holes in the hind brace B, and the end of the mould-board E to different notches in the front brace B, the mould-board can be moved in position so as to turn a furrow slice of variable thickness, while the sub-soil blade D continues at a constant depth, or the mould-board may be placed so as to constitute a continuation of said blade, and thus change the sub-soil into an ordinary plough.

Claim.—Combining with a sub-soil plough a mould-board, moveable to different heights, substantially in the manner and for the purposes specified.

No. 15,887.—SAMUEL A. KNOX.—*Improvement in Ploughs.*—Patented October 14, 1856.

This invention relates to a mode of constructing the form of a mould-board on geometrical principles, by means of arcs and straight lines, which are to be modified according to the nature of the soil in which the plough is to be used. An explanation of the rules of this method would take up too much space to be given here.

The inventor says: I do not claim the formula or rule by which the form of the working surface of the mould-board is determined or obtained, as I have only described such rule or formula as a mode of determining and defining the form which does constitute my invention, that it may be distinguished from all other forms of mould-boards known prior to my invention.

I *claim* the form of the working surface of the mould-board of ploughs, substantially such as described, and composed or combined of the several characteristic features specified.

No. 16,277.—JACOB HECKENDORN.—*Improvement in Ploughs.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim a reversible or self-sharpening point.

I *claim* the twisted, four-coultered, double-ended, and reversible self-sharpening point F F F F, as described, formed of one piece or casting, and operating as point and coulter, as specified.

No. 16,260.—JONATHAN ADAMS.—*Improvement in Ploughs.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The peculiar manner of holding the slotted mould-board, share, or hoe, to the stock A, viz: by means of the curved brace E, with its shank and shoulders extending from the beam B, and against and through the hoe and stock, as set forth.

No. 14,075.—WILLIAM E. WYCHE.—*Improvement in Cultivating Plough.* Patented January 8, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—The arranging upon the share of the plough of one or more vertical cutters E, with a curved or inclined plate F at or near the rear outside of the share, for the purpose of dividing the furrow-slice vertically, and turning the outer portion towards the plough, as set forth.

No. 14,333.—WILLIAM E. WYCHE.—*Improvement in Cultivating Ploughs.*—Patented February 26, 1856.

The nature of this improvement will be understood from the claim and engravings.

The cutters arranged behind the shield are in such a position that a plane drawn to meet their edges would have the form of a mould-board.

The inventor says: I do not claim one or more cutters on the ordinary mould-board, or on the standard of a plough, with a mould-board on the opposite side, as these are not new.

But what I do *claim* is, substantially, a series of knives or cutting-blades D E on the standard, in the place of and for a mould-board, for dividing, cutting, and turning the furrow-slice horizontally, or nearly so, and depositing the pulverized soil mostly in the furrow, and turning the sod or turf upon the surface; and this I *claim*, whether said knives be made adjustable or otherwise, substantially as described.

No. 15,919.—EDMUND C. BILLS, jr.—*Apparatus for cleaning Coulter or Ploughs.*—Patented October 21, 1856.

The nature of this invention consists in suspending upon and in front of the coulter C, and above the cutting-edge of the same, an inverted ribbed cone D, capable of rotation by the pressure of grass against it, so as to carry off said grass laterally, and thus free the coulter from the grass.

The inventor says: I expressly disclaim smooth cones and cylinders, and those that are ribbed in the direction of their elements, as coulter

cleaners; I also disclaim the employment of mechanical devices for rotating such cleaners.

But I *claim* the employment upon the front of a coulter of an inverted cone, having spiral flanges thereon, self-acting by the upward pressure of the grass to free the coulter, substantially as set forth.

No. 14,287.—ABRAHAM MARQUISS, EZRA MARQUISS, CHARLES MARQUISS, and CHARLES EMERSON.—*Improvement in the Mole of Draining Ploughs.*—Patented February 19, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventors say: We are aware that mole-ploughs for forming subterranean drains have been used, and therefore we wish it to be understood that we do not claim the principle of forming underground drains by the use of such implements.

But we *claim* the peculiar shape of the mole A, which enables its forward movement to form a subterranean perforation whose top and sides will be smoothly and densely compressed, and whose bottom will be left almost entirely uncompressed, substantially in the manner and for the purpose herein set forth. Also, the giving tail *a* of the mole such a shape and position that it will serve to close up the slit cut by the mole shank B in forming a perforation; and also serve to lead the mole upwards to the surface of the ground as soon as the beam E is allowed to turn on its axis, substantially as herein set forth.

No. 14,373.—AARON and THOMAS S. SMITH.—*Improvement in Gang Ploughs.*—Patented March 4, 1856.

Any number of shares may be used, and the front axle B may, by loosening the nut *e* on the bolt, be adjusted so that the shares will be in line with the centre of the axle.

Claim.—Combining the axle B and wheel J with the bed piece A, when constructed and arranged substantially in the manner and for the purpose set forth.

No. 15,039.—CYRUS GARRETT and THOMAS COLTMAN.—*Improvement in Sub-soil Ploughs.*—Patented June 3, 1856.

The cast-iron standard 3 is provided with a slot 6, in which a flat bolt passes up for the purpose of attaching the land side 2 to the beam. The bolt *q* serves to steady the land side. *s* represents a steel mould-board which is riveted to the flange 4 of the standard. Such a mould-board of wrought metal is capable of being placed on the plough at any required angle by bending it.

Claim.—The arrangement of the standard 3, flange 4, share 1, and mould-board 5, and these arranged with the brace-bar 9 and stay-bar 6, for purposes mentioned in the specification.

No. 14,810.—Abram Heulings.—*Improvement in Potato Diggers.*—Patented May 6, 1856.

The cutter F throws off the top of the ridge and cuts the tops loose from the roots, its inclined faces carrying them out of the way of the excavator. The excavator passes through the ridge and under the potatoes, which, as soon as they enter the scoop, are caught by the rakes and rapidly drawn up the open bed *e*, and discharged upon the reciprocating grating H, whence they pass into the receiver R. In their transit along bars *e* and e^1, the potatoes are separated from the earth.

The inventor says: I disclaim all systems of teeth or brushes which have radial positions upon revolving carriers at the time of action, whether hey be upon an endless band, or on a cylinder, as in Schaffer's patent of 1853, as their action is altogether different from that of my construc-io n.

But I do *claim* the combination of the excavator E and inclined open bed *e* with the series of rakes R^1, so connected with the endless carrier P that the rake-teeth will be projected to the front of the excavator, at or nearly at a right-angle to its surface, and have a motion of translation along the bottom of the same, previous to reaching the inclined bed.

No. 15,100.—Amos L. Grinnell and John Z. Williams.—*Improvement in Potato Diggers.*—Patented June 10, 1856.

The implement is used in the following manner: The handles H are raised by two attendants, one being at each end of the frame A, and the two rakes G G will consequently be distended or forced apart. The rakes are then pressed into the ground, and by pressing upon the handles H the rakes are made to meet underneath the potatoes. The implement is then raised and shaken vertically till the earth falls between the teeth of the rakes, leaving the potatoes within them.

Claim.—The two rakes G G attached to the frames F F, the frames being hung on the shaft E, which is connected to the frame A, and the handles H of the frames passing through the side pieces of the frame A.

No. 15,628.—Silas Woolson.—*Improvement in Potato Diggers.*—Patented August 26, 1856.

The nature of this invention will be understood from the claim and engravings.

Claim.—The employment of an open concave digger, arranged and combined with a movable standard, as and for the purpose set forth.

No. 16,184.—William Mussehl.—*Improvement in Potato Diggers.*—Patented December 9, 1856.

As the machine is drawn over the potato ground the mould-boards *m* catch the stalks and weeds and throw them on both sides of the furrow opened by shovel *f*. The shovel *f* by its progress carries the

soil with the potatoes upwards into the separator S, where, by the rotation of said separator, the earth is loosened from the potatoes, and falls out between the interstices of the wires, while the potatoes drop out at the rear end of the separator.

Claim.—The revolving separator S, in combination with the adjustable inclined shovel *f* and mould-boards *m*, arranged and operated in the manner and for the purpose set forth.

No. 14,097.—W. W. HARVEY.—*Improvement in Implements for Pruning Trees.*—Patented January 15, 1856.

The cutter, by pushing the handle F, is forced a sufficient distance into the limb of the tree to be cut off, so that it will be held in the cut, and the handle F and socket E is then drawn backwards and the upper end of the socket E is forced against the collar B, which blow will of course force the cutter still further into the limb. This operation is repeated until the limb is severed from the tree.

Claim.—Having the shank or bar C of the cutter or chisel A fitted within a socket E, attached to a proper handle F. The socket being allowed to work on a shank or bar, substantially as shown for the purpose specified.

No. 16,016.—PELLS MANNY.—*Improvement in Automatic Rakes for Reapers.*—Patented November 4, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Pivoting the rake B, for curvilinear play over the platform, to the up and down moving lever or supporting beam D, arranged to operate together and separately at intervals in relation to the platform and each other, in the manner and for the purpose set forth.

No. 15,601.—CHARLES P. CARPENTER.—*Improvement in Hay Rakes.*—Patented August 26, 1856.

The horse by which the machine is drawn being attached to the loops in the forward ends of the tugs D D, and the machine being in position as represented in fig. 1, the hay will be caught by the teeth I, and collected. When the teeth are loaded with a sufficient quantity of hay to form a windrow, the driver releases the catch F from the handle, when, as the tractive power is applied to the movable head B, said head will be drawn up on the guide-rods C, until its motion is stopped by the links *n* coming in contact with the forward end of the brackets E, as represented in fig. 2, by which motion the hay is discharged.

The inventor says: I am aware that a rake has been constructed with a fixed head, (similar to the one which I employ,) into which spring steel teeth are inserted, and drawn by power applied to such

fixed head; therefore, I do not claim such a rake head, nor such teeth.

Neither do I claim such a rake head, nor such spring teeth; r do I claim the wheels or the handles by which said rake is guid the arms K K; neither do I claim the tug (attached to such a fixed of itself alone; but I *claim* the slotted bed-plank A, the movabl B, the guide-rods C C, the catch F, and the connecting of the tug to the brackets E E by the links *n n*, or their equivalent dev devices, arranged as described and for the purposes set forth.

No. 15,653.—HANKLES HEABERLIN.—*Improvement in Hay Ra* Patented September 2, 1856.

When it is required to discharge the load from the rake teeth the operator from his seat E tilts the lever G, which swings to with frame Q and spring bow V on pivot *b*. By this motion the teeth are released from the pressure of the foot *g*, the rake revolv discharges its load. By letting down the lever G, the rake v sume its former position and be ready for raking another win

Claim.—The combination of the revolving rake with the adj spring bow V, so that said rake may be set to trip, and be trippe such variable motion of the foot *g* as may be desired; the whol arranged and operating in the manner and for the purpose set f

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No. 15,777.—ISAAC J. ROBBINS.—*Improvement in Hay Rakes.* ented September 23, 1856.

When this machine is in operation, the hinged arms D rest horizontal bar J, and the blocks *a*, by operating the lever G, hav slided so as to prevent the teeth E from turning; by withdrawi blocks *a*, by means of the lever G, the teeth E are caused to r When it is required to draw the machine over the ground with teeth E being in contact with the same, this can be accomplis operating lever I, rod *i*, and lever *h*, as represented in fig. 2.

Claim.—I do not claim, exclusively, the use of independent te horse-rakes; the same having been described in the patent gra Calvin Delano, February 7, 1849.

Neither do I claim the exclusive use of revolving teeth for horse

But I *claim* the hinged arms D D, with their revolving teeth I combination with the sliding-blocks *a a;* the whole being cons substantially in the manner and for the purpose specified.

No. 16,025.—THOMAS R. ROACH.—*Improvement in Hay Rakes.* ented November 4, 1856.

The object of this invention is to make a revolving rake, th of which, by rising and falling vertically at their points indepe of each other, can accommodate themselves to any unevenness surface over which they pass, and thus gather the hay or grain

better than can be done by the ordinary revolving rake. The rake-teeth B are fitted at their short end in a cast-iron socket *b*, and can vibrate on the pins *c;* the India-rubber strips *e* are placed between the ends *a* and the socket *b*, and the latter is entered in the mortise of the bar A and fastened by screw *g*.

Claim.—The springs above and below the teeth, operating in the manner and for the purpose substantially as set forth.

No. 16,318.—JOHN J. SQUIRE.—*Improvement in Hay Rakes.*—Patented December 23, 1856.

If it is desired to raise the arms G so that the rake M shall discharge its load, the driver on seat A moves lever B forward, which, turning on fulcrum *a*, throws clutch D in gear with wheel N, and causes shaft L to turn with the wheels, so that the arms C, with their attachments J and K, are raised. The arms C having been lifted sufficiently to discharge the load on the rake, the chain on the lever F draws lever B back to its former position, detaching clutch D, and allowing the rake to drop to the ground.

Claim.—The clutch and levers, operating the same in combination with the arm F of the rake-shaft, and the connexion between said arm and lever B, whereby the rake is lifted by the moving power, and automatically released, substantially as specified.

No. 14,321.—NATHAN MARTZ.—*Improvement in Horse Rakes.*—Patented February 26, 1856.

Very slight lifting power applied to handle H or foot-treadle L will raise the rake from the ground and disencumber it of the hay it may have gathered.

Claim.—The combination of the coiled spring S, axle B, rock-shaft E, and rake-teeth T, when arranged in the manner and for the purpose herein described.

No. 14,067.—RANDAL PRATT.—*Improvement in Horse Hay-Rakes.*—Patented January 8, 1856.

The rake being put in motion, the teeth D D proceed to gather up the hay. The rake being full, the operator, standing upon the board T, applies his foot to H, and simultaneously the teeth are raised from the ground, and the prongs F brought down upon the contents of the teeth, which are thus cleared, and made ready to renew the operation.

Claim.—Hanging the prongs or clearers F F so that they can vibrate, and connecting them to the devices which operate the teeth, so that they will vibrate in an opposite direction simultaneously with the teeth, to clear them of the crop gathered, and press it together on the ground, as set forth.

No. 16,156.—Jesse Whitehead.—*Improvement in Self-acting Rake for Harvesting Machines.*—Patented December 2, 1856.

As the machine is moved along, the driving-wheel B imparts a reciprocating motion to the pulley N, by the arrangement of crank-pin *a*, pitman *b*, lever *c*, shaft *d*, toothed-sector K, and pinion L. The rope P, which passes over the pulleys N and O, is fastened at both ends to the rake-head H of the rake J. By this arrangement, the rake J rakes the grain towards the rake I, when both rakes, holding the grain between them, pass over the movable cam S, and thence over the stationary cam R, and deposit the gavel behind the platform, when both rakes recede into the position represented in the engraving.

Claim.—The combination of the rakes I J and rod F, when said parts are made to operate together, and independently of each other, substantially as described.

Also, in combination with the rakes and rod F, the permanent cam R, and yielding cam S, which causes said rakes to advance in one line and return in another line, as set forth.

Also, in combination with the rake-head H, the rod *g* having its support alternately in Q *h*, for the purpose of preventing said rake-head from binding on its ways, as set forth.

And, finally, giving the rake I a movement varying to the size of each and every gavel as set forth.

No. 16,145.—Stephen R. Hunter.—*Improved Raking Apparatus for Harvesters.*—Patented December 2, 1856.

As the machine is drawn along, the grain is cut by the rotating cutters C, and passes between the two cutters and upon the endless apron I, by which it is conveyed by the side of bar J. The bar J, every time the projecting plate *l* passes through the box M, is moved outward to the edge of said plate, and forces the cut grain therefrom; the ball *k* is raised to the top of box M by the plate, and the chain *j*, to which the ball is attached, draws the bar J to the edge of the plate, as represented in dotted lines in fig. 2. As soon as the ball is freed from the plate *l*, the bar J is forced back to its original position by spring L.

The inventor says: I do not claim the rotating cutters C C and the hinged or jointed plates A A; for they have been previously used, and were formerly patented by me.

But I *claim* the bar J attached or hinged to the arm K, on the platform H, and operated by the spring L, chain *j*, ball *k*, which is fitted in the box M, and the plate *l n*, the wheel G, when the parts are arranged to operate in combination with rotary cutters C C, and endless apron I, as described, for the purpose set forth.

No. 15,237.—John C. Hicks.—*Improvement in Raking Attachment to Reapers.*—Patented July 1, 1856.

The shaft L being rotated in any proper manner from the driving-wheel, the rack J will be moved back and forth by means of crank K.

When the rack is forced outward, the rake G will be drawn inwards over the platform A, and the grain will be clasped between the rake G and holding rake O; the crank K will then turn the rake J and shaft B, with the two rakes G O, around; the crank then draws the rack J inwards, and the rake G is thrown outward, as shown in dotted lines fig 2, the grain falling from between the two rakes upon the ground. The rake G, when thus extended, is turned around, the crank K again turning the shaft B, and the rake G is drawn inwards as before.

The inventor says: I do not claim the general construction and operation of the above described raking attachment, for I am aware that the same has been accomplished before.

But I *claim* operating the rakes G and O by means of the segment H and rack J, with pin C attached, in combination with slotted arm or crank K, and groove *e* in platform P, when arranged and operated in the manner and for the purpose set forth.

No. 15,046.—Joseph Smith.—*Improvement in Machines for Raking and Loading Hay.*—Patented June 3, 1856.

As the rakes rise to the place of discharge, the rake-teeth *v* force out a guard plate S^1, secured to arms *g g;* and when the rake has passed it, this plate springs back under the rake, and prevents the loose hay from falling on the ground behind the wagon. Below this spring guard-plate S^1 is a stationary plate S^2, which keeps the hay on the wagon. After the rake passes this guard S^1, it raises one arm of the trip-dog v^2; the other arm u^1 being connected with the fork, brings it directly over the rake S; now the teeth of the fork, being of a V shape, gather the hay, and as the rake rises it forces the fork back by means of projecting piece r^1, so as to drop the hay directly on the wagon, and the next rake draws the fork back for another supply of hay.

Claim.—The spring guard-plate S operated by the rake.

No. 14,538.—D. H. Thompson.—*Improvement in Machines for Raking and Loading Hay.*—Patented March 25, 1856.

When the rake D^1 is thrown forward, the cams *o* will act upon the levers K, and the rake F will grasp the hay and bring it between the teeth *n* of the rake G and the front end of the body A. When the cams *o* pass the inner lever *k*, the upper end of the same lever will act upon arm *n*, and cause the teeth *m* to take hold of the hay. When a succeeding quantity is brought upward, the previous quantity will be thrown into the body A.

Claim.—The combination of levers K with rakes F and G, when operated substantially as shown, for the purpose specified.

No. 15,174.—Owen Dorsey. *Improvement in Reapers.*—Patented June 24, 1856.

To the outer end of the driving-shaft E there is attached a crank-pulley G having a pitman H connected to it, said pitman being attached

to an arm I at the upper end of a vertical shaft J on the frame A. The lower end of the shaft J has an arm K attached to it, said arm being pivoted to a pitman L which is attached to the cutter bar M. By this arrangement four vibrations or strokes of the sickle are obtained at every revolution of the crank-pulley G; for arm K and pitman L form a toggle which gives a double movement, or increases the movement of the sickle one half more than the usual direct connexion by a pitman attached to the sickle and crank-pulley.

The inventor says: I do not claim the raking attachment, for that was formerly patented by me.

But I *claim* driving the sickle, or communicating motion thereto, by means of the crank-pulley G, pitman H, arms I K L, and shaft J, arranged as shown, whereby four vibrations of the sickle are obtained at every revolution of the crank-pulley G.

No. 15,655.—M. G. HUBBARD.—*Improved Raking-Attachment for Reapers.*—Patented September 2, 1856.

As the pulley C is rotated, the part *c* of the rake being fitted in said pulley, the rake-bar B will be vibrated upon the upright *f*, the teeth *a* being down upon the platform A, and swept over the platform, while the inner end of part *c* is passing over the axis of pulley C, and the teeth raised and passed over to the front end of the platform and depressed, while the inner end of part *c* is passing underneath the axis of of said pulley.

Claim.—The jointed rake-bar B, attached to the upright *f*, and connected with the pulley *c*, as described, for the purpose set forth.

No. 15,096.—GEORGE W. N. YOST.—*Improvement in Reaping and Mowing Machines.*—Patented June 10, 1856.

After the projection h^1 on the cam H makes one passage of the horizontal line through the centre of the cam, having carried the yoke J, and at the same time the cutters, to one extreme of their stroke, it revolves without touching the yoke until it acts against the other side, when the yoke, and consequently the cutters, are suddenly carried in the opposite direction. Thus, the cutters E at each end of the stroke remain for a time stationary, and, when moved, traverse the space between the fingers B, partly cutting the grain intervening, and partly pushing it towards the stationary cutters D, against which it chops it off with what may be called a shear and chop blow.

The inventor says: I do not claim giving an abrupt and intermittent reciprocating motion to the cutter-bar of grain and grass harvesters.

But I *claim* the above described operating mechanism, or its equivalent, to produce an abrupt and intermittent reciprocating motion, in combination with the inclined-edged cutters D and the straight-edged cutters E, whereby I obtain the shear and chop blow, substantially as and for the purpose above set forth.

No. 15,252.—JOHN REILY.—*Improvement in Reaping and Mowing Machines.*—Patented July 1, 1856.

The object of hinging the standards L of the raker's seat M is to keep it in an upright position and to prevent vibration, as the drag-tongue J would, if not hinged to them, press it forward, causing it to describe the arc of a circle when the cutter-bar A is raised, &c ; the pivoting of the end of the brace at the axis of motion allows it to compensate for the motion of the machine, the distance of the seat to this axis being under all circumstances the same.

The manner of raising the cutter-bar A will be well understood by the engravings.

Claim.—1st. The method of raising and lowering the cutter-bar A, either from the driver's or raker's seat or from both simultaneously, by means of the rod *u* and lever *x*, in combination with the lever X, substantially as described.

2d. Hinging the driver's seat M to the drag-tongue J, when combined with a brace N, pivoted at *i*, to the axis of motion of the machine, substantially in the manner and for the purposes described.

No. 15,796.—WILLIAM P. WOOD, assignor to SAMUEL DE VAUGHAN and WILLIAM P. WOOD.—*Improvement in Reaping and Mowing Machines.*—Patented September 23, 1856.

This invention consists in the manner of combining with a main frame H, rigidly supported at its forward end by a pair of truck-wheels P to prevent the oscillation of the driver's seat and to relieve the horses' necks from the strain exerted upon them in raising the cutter-bar, a balanced frame A, for the support of the platform and cutting apparatus mounted upon two independent wheels O and B in a line with and in rear of the axis of the driving-wheel, and of equal diameter, so that when the cutter-bar is raised it will rise evenly or in a line parallel with the surface of the ground, and in connexion with the lever Q that raises the machine, it having its fulcrum upon the main frame; the finger-bar can be raised or lowered without throwing any strain upon the tongue of the machine. As the frame to which the cutter-bar is secured is not mounted upon the axis of the driving-wheel, it will be apparent that the teeth on the driving-wheel must be cut at a peculiar angle, as represented in the illustration, to operate the knives.

The inventor says: I do not claim a balance-frame supported and turning upon an axis of motion, independent of the axis of motion of the driving-wheel, of itself.

But I *claim* a balance-frame A supported and turning upon an axis of motion back of the axis of the driving-wheel, when used in connexion with angular or oval-shaped gearing, or its equivalent, and the bifurcated stanchion-brace Q, in combination with a main frame H, rigidly supported at its forward end upon a truck-carriage I or wheels, the whole being constructed, arranged, and operated in the manner substantially as described.

No. 16,251.—DANIEL C. SMITH.—*Improvement in Reaping and Mowing Machines.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The combination of rock-shaft H with hollow rock-shaft K, when the same are connected for joint operation in moving two sickles at once, by means of mechanism described, and arranged and operated, in relation to each other, from main wheel A, as set forth.

No. 16,258.—THOMAS D. BURRALL.—*Improvement in Reaping and Mowing Machines.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim the cutter-bar, cutters, or guards in emselves as these are well known.

Neither do I claim bringing a notched or turned edge in contact with the lower side of the vibrating cutters, as this has been used when the stationary cutters were made in one piece of sheet metal, and said metal folded over to serve as a finger-board; but I am not aware that the finger-board has before been formed with a continuous lip or rib, at the front edge, coinciding, or nearly so, with the front edge of the vibrating cutter-bar, when free space is allowed below and behind said cutter-bar for any extraneous substance to free itself, and pass away with the grass or grain to the rear of said finger-board, as the machine advances.

I *claim* placing the front edge of the cutter-bar *c* on the line, or nearly so, of the front edge of the finger-board *a*, when said finger-board is formed with the raised front edge or lip *e*, leaving free space below and behind the cutter-bar for any extraneous substance to escape from beneath said cutter-bar and pass freely away to the rear with grass or grain, as specified.

No. 14,781.—PLINY THAYER.—*Improvement in Reaping Machines.*—Patented April 29, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—In combination with the raker's stand C and the usual platform B for receiving the cut grain, the rearward inclination and extension of said platform from the line *a*, so that the raker may move his rake with the natural sweep of his arms or body, in raking the gavel from the platform, and deliver it clear of the gearing.

No. 15,044.—JACOB J. MANN and H. F. MANN.—*Improvement in Reaping Machines.*—Patented June 3, 1856.

When the grain is cut and has fallen upon the apron E, this being *by means* of the bar G and strip e brought close up to the cutter-bar,

he buts are not retarded by friction, but are carried up by the slats or leats *c* on the apron, while the heads, which, being generally the eaviest, naturally hug the apron closest, and would, were it not for he bar H, be carried up first, are somewhat retarded by friction against aid bar, upon which they fall to some extent. Thus the effect otherwise resulting from the difference of weight in the heads and buts of grain is counteracted, and it is delivered in a straight and even manner to the action of the revolving-rake J, which divides it into gavels.

Claim.—The combination of the bar or plate H, or of other equivalent device at the back of the apron, with the strip *e* beneath the apron, and the bar or plate G upon the finger-bar, under which the said strip *e*, and over which the apron extends, or with other equivalent device, substantially as and for the purpose above set forth and described.

No. 16,183.—M. G. HUBBARD.—*Improvement in Teeth for Reaping Machines.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engravings, in which figure 1 represents a perspective view of the tooth; figure 2 the upper side, and figure 3 the under side of the core to be used in casting the tooth; figure 4, core-box, the upper part *y* being removed.

Claim.—Forming a tooth, substantially as described, by constructing the core thereof, in the manner set forth, and for the purposes specified.

No. 14,673.—W. J. MCINTOSH.—*Improved Implement for Reaping Rice.*—Patented April 15, 1856.

The arm B terminates to a sickle-blade D, working between two guide-plates E F, the lowest one of which plates F has a sharp edge, so as to operate upon the standing rice, in combination with the blade D. The wire G answers the purpose of bending the stalk over the edge of plate E towards a horizontal position, so as to deposit the cut rice upon the cradle G^1. A slider I, provided with an arm K and spring L, is made to traverse the length of the cradle backwards and forwards in order to push the rice over the edge P on the stubble.

Claim.—The cutters D F, in combination with the wire G and the cradle and slides G I, or their equivalents, for the purposes set forth.

No. 14,540.—A. W. WASHBURN.—*Improvement in Cotton Scrapers.*—Patented March 25, 1856.

The frame rests upon the axles K L, which are combined with the wheels E E^1 and F F in such a manner that they can be secured in any desired position by means of the set screws *l l*. The peripheries of the wheels are bevelled for the purpose of adapting them to the shape of the sides of the cotton plant ridges. The cutter G is fastened to the end

of a lever C which is vibrated by means of the pins *t* and plate *m*. The forward pair of ploughs H H perform the operation of barring off the base of a ridge; the scrapers I I shave off the sides of the ridges, and the cutter G performs the operation of bunching the cotton plants.

Claim.—The bevel wheels for supporting and guiding the machine, when they are arranged in combination with the side scrapers I I, and the thinning-out cutter G, or either of them, substantially in the manner and for the purpose herein set forth.

No. 14,543.—THOMAS C. BALL, assignor to NATHANIEL LAMSON.—*Improvement in Scythe Fastening.*—Patented March 25, 1856.

The shank S is inserted between plate B and ring C upon notch *b*. The cylinder E is thus placed between S and B, (as shown in fig. 1,) and turned, thus causing the cylinder to extend its greater diameter between S and B.

Claim.—The cylinder E constructed, arranged and operating substantially as set forth.

No. 14,842.—DENISON W. GREEN, assignor to himself and ARETAS FERRY.—*Improvement in Scythe Fastening.*—Patented May 6, 1856.

When the cam-lever G is turned around, so as to project beyond the end of the snath, the shank of the scythe-blade may readily be passed through the binding stirrup E and have its stud or projection fixed in its recess in the bed D. The cam-lever is next to be turned around so as not only to carry its cam *e* against the wedge, but its long arm *f* close up to the handle or snath A. By this action of the cam against the wedge F, the stirrup will be drawn down close upon the shank *a* of the blade, and will force said shank against the bed-piece D so as to confine the blade to the snath.

Claim.—The combination of the adjustable wedge F and cam-lever G, as applied to the binding stirrup E and snath A, as arranged and made to operate therewith, substantially as specified.

No. 15,849.—DAVID ALLEN GOODNOW.—*Improvement in attaching Scythes to Snaths.*—Patented October 7, 1856.

By operating the screw D, the dog E, and the end of the shank of the scythe, which fits into a notch of dog E, can be adjusted to suit the convenience of the operator.

Claim.—The screw D and dog E, in combination with the projection C, the whole being arranged in the manner and for the purpose described.

No. 15,194.—SILAS G. RANDALL.—*Improvement in Hand Seeding Machines.*—Patented June 24, 1856.

When the lever J is in the position shown in fig. 1 the seed-slide E is down at its lowest position, entirely filling up the sheath B; said slide

also in that position locked, by means of its shoulder *e* passing under the guide G, it being forced there by the spring *f*. In this position the tongue and sheath may be forced into the ground by the bar A alone.

Claim.—In combination with the reciprocating motion of the seed-slide E, the locking and unlocking of it at each planting operation, so that the tongue shall be firmly held against the resistance of the earth in forcing it and the sheath therein.

No. 14,073.—JOHN S. SNYDER.—*Improvement in Seeding Machines.*—Patented January 8, 1856.

The nature of this improvement will be understood from the claims and engraving.

The inventor says: I *claim* the so arranging of the openings in the seeding-plates *h g* that the machine can be converted from a drilling to a hill-planting one, or *vice versa*, by changing the running direction of the movable plate, as herein set forth. (See arrows 1 and 2)

2d. I do not claim a secondary box or receptacle for the excess of grain; but I *claim* as an improvement upon the machine of Snyder & Young, patented 28th February, 1854, viz: the arrangement of the convex seeding-plate *h*, segmental opening L, and seed receptacle or drawer M, for admitting of the location of said drawer outside of the hopper and in more convenient position for the attendant, as set forth.

No. 14,284.—STEPHEN GORSUCH.—*Improvement in Seeding Machines.*—Patented February 19, 1856.

By employing the screens I J the operator is enabled to see the seed as it passes down; and if the spout becomes choked, it will be detected at once.

The inventor says: I do not claim the distributing device, for the same plan is well known and in common use; but what I do *claim*, is placing the screws I J in the conveying tube or spout G, the front and back sides of the tube or spout being open, substantially as described for the purpose specified.

No. 14,450.—JOHN GERMAN and C. B. HOYT.—*Improvement in Seeding Machines.*—Patented March 18, 1856.

The nature of this invention will be understood from the claim and engravings.

We do not claim the reciprocating slide D, nor operating said slide by an elbow lever and pins attached to the wheels B; but we *claim* having the elbow lever G upon a screw rod H, so that said lever may be moved in and out of line with a portion or all the pins *a* on the wheel B, for the purpose of causing the slide D to be operated faster or slower, or to remain stationary, as described.

No. 14,703.—THOMAS A. RISHER, assignor to Himself and I. K. COOPER.—*Improvement in Seeding Machines.*—Patented April 15, 1856.

By operating the right and left screw D the plates *a* a^1 are either drawn towards each other, or the spaces between the plates *a* and a^1 are increased. The reciprocating slides H are provided with apertures *n*, through which the seed is discharged; *g* are apertures in the bottom F of the hopper, through which the seed passes to the slides.

Claim.—Bars A A^1 and plates *a* a^1, in combination with the reciprocating slides H, and the double-holed bottom F; the whole being constructed in the manner and for the purpose described.

No. 14,707.—GEORGE I. BITLER.—*Improvement in Seeding Machine.*—Patented April 22, 1856.

The pulley K may be fitted more or less eccentrically on the shaft F, so as to give a greater or less length of stroke to the slide H. The discharge of seed is regulated by adjusting the slide H by means of arm J and notches *g*. The adjusting plate I serves to bring the apertures *d* in proper relative position with the apertures *c b*.

The inventor says: I do not claim a perforated reciprocating slide H, for it has been previously used; but I *claim* the reciprocating slide H, having different sized holes *c* made through it, in combination with the adjustable bottom G^1 and adjustable plate I; said slide H being also arranged in combination with and operated by the pulley K, substantially as shown, for the purpose specified.

No. 14,894.—HOSEA WILLARD.—*Improvement in Seed Machines.*—Patented May 13, 1856.

The seed to be sown is placed within the frames or screens J J, and as the implement is drawn along, the screens will rotate; the seed will pass through the screens or sieves *e*, and will fall upon the inclined board or plate K, and thence upon the ground. The teeth on the cylinders G harrow the seed into the soil; and as these cylinders rotate in a reverse direction to the wheels B, their motion may be quite slow compared with that which would be required provided they rotated in the same direction as the wheels B.

Claim.—The rotating cylindrical frames or screens J J, in combination with the inclined board or plate K, with pivoted cleats K^1 attached for the purpose of distributing the seed, and the cylinders or rollers G G, having teeth *c* or shares *d* attached to their peripheries.

No. 15,104.—C. O. LUCE.—*Improvement in Seeding Machines.*—Patented June 10, 1856.

As the machine is drawn along, a reciprocating motion is given to the slides or valves N N, O O. When the apertures *h* in the upper

ides are in line with the tubes L L, the seed will pass through the pertures in the upper slides and down upon the lower slides O O, the pertures *i* of which, are out of line with the tube L L; and when the pertures *h* in the upper slides are thrown out of line with the tubes L L, the apertures *i* in the lower slides are brought into line with them, and the seed passes through the apertures *i* into the spaces formed by the plates *e* in the wheels I I, and is thrown from them by centrifugal force.

The inventor says: I do not claim separately the distributing wheels I I, for they have been previously used.

But I *claim* the distributing wheels I I, in combination with the slides or valves N N, O O, arranged and operating as shown, for the purpose specified.

No. 16,219.—Moses D. Wells.—*Improvement in Seeding Machines.*—Patented December 9, 1856.

The reciprocation of rod D produces the vibration of agitators B sufficient to produce the discharge without the risk of the moving parts being choked by seed. As the seed leaves the discharge opening it falls upon the scatte er E, and thence drops to the ground.

The inventor says: I make no claim to the use of reciprocating bars or causing the movement of either rigid or elastic clearers and discharge apertures of seed planters.

But I *claim* the combination of the case with the swinging protruding agitators thereof, and the reciprocating bar contained within the case and actuating the vibrating agitators, substantially as and for the purposes set forth.

No. 16,209.—James M. Kern.—*Improvement in Seeding Machines.*—Patented December 9, 1856.

For sowing coarse and fine seed, or seed and fertilizers, at the same time, the centre-board E is secured by means of key-slide F in the position drawn in full lines. The compartments B and C being respectively filled with fine and coarse seed, motion is imparted to the agitators *d* and *n* by vibrating lever L, and the fine seed will pass through the passages *m*, and the coarse seed through the passages *h*. If it is desired to sow fine or coarse seed only, then the slide F is withdrawn, and the centre-board E turned to one or the other side, as represented in dotted lines.

Claim.—Combining with a seed-box provided with a double set of passages, substantially as described, a hinged centre-board, for the purpose of sowing both small and coarse grain separately, or both at the same time, or grain and fertilizers, as set forth.

No. 16,195.—Anson Thompson.—*Improvement in Implements for Rolling Seeds in the Earth.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim separately either a jointed roller-frame, or two sets of rollers with the one set in advance of the other, and the rear set following in the spaces untrodden by the forward set; neither do I claim a roller made up of a series of wheels, arranged parallel to each other, at a suitable distance apart, and hung so as to rotate separately of each other; but I *claim* the combination with the two series of separately revolving wheels or narrow rollers *b b*, arranged (the several rollers and each series) relatively to each other, as specified, and of the frames A A constructed of slats *c*, arranged as described, for operation, in connexion with the wheels, as set forth.

No. 14,570.—THOMAS E. MARABLE.—*Improved Machine for Gathering Seeds or Grain in the Field.*—Patented April 1, 1856.

A represents a receptacle for receiving the seeds to be gathered. The projections *a a* on shaft E acting upon lever F impart to the rubber H a transverse rubbing motion over the stationary board I, while the cams *e e e e* on the axle J, together with levers *f f*, cause said rubber to rise and fall. The rubbing board I consists of a series of slats *h*, through which the seeds pass when rubbed out, and, falling upon an inclined board K, are directed into the receiving box A.

As it is necessary for the reel to deliver the heads at the exact time that the board H is raised, it should be geared to the driving axle J.

Claim.—In combination with a gatherer for drawing in the heads, the rubbing board having a vertical movement for receiving the heads under it, and then dropping down and having a transverse rubbing motion for rubbing out the seeds or grain, as herein described.

No. 14,517.—CYRUS ROBERTS and JOHN COX.—*Improvement in Grain Separators.*—Patented March 25, 1856.

A represents the frame which supports the threshing cylinder B, the winnowing apparatus C, and a conveyor and separator between B and C. The conveyor is suspended by the two radius bars L, and receives motion by means of rod D and crank E on shaft E^1. The connexion of the bars L with the crank E is such as to cause the bars to rise during the forward motion of the conveyor. The fingers *f* are secured to a head *g*, which turns on journals confined in boxes on each side of the bottom. One end of the head of each set of fingers has an arm N, which is connected with an adjustable guide O O^1 secured to the frame. The motions caused by this arrangement, together with the divergency of the bars, will agitate the straw thoroughly, so as to leave but little, if any, loose grain in it. The winnower C is provided with an adjustable tail-spout P for the purpose of catching the unthreshed heads and delivering them into a receiver at the side of the machine.

Claim.—1st. The method of facilitating the separation of the grain from the straw by means of diverging bars I, substantially as herein described.

2d. Constructing the rear portion of conveyor with a solid ridged

tom, in such manner as to form a series of diverging channels K to ead the grain preparatory to delivering it to the winnower C, as ein set forth.

3d. The employment of shaking fingers *f*, arranged and operating in h manner that they will rise on the forward movement of the conyor, and thus lift and shake the straw as it is thrown forward, in mbination with the carrying bars, whereby certain advantages are tained, as herein set forth.

4th. The arrangement of shaking fingers *h* in recess M in the ttom of the conveyor, in such manner that they can be alternately otruded above and retracted below the carrying bars, to shake the raw thoroughly, and at the same time not interfere with its conyance, as herein described.

5th. The adjustable turning tail-spout P, arranged substantially in e manner and for the purposes herein set forth.

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o. 15,948.—J. V. JENKINS.—*Improvement in Machines for Shearing Sheep.*—Patented October 21, 1856.

As the shaft G is rotated, rotary motion will be communicated to the aft *e*, by means of the compensating shaft composed of shaft F and be E, and by means of the universal joints *g* and *h*. The cam *d* on aft *e* will cause the plate D to vibrate, and the teeth *f*, as they pass er the fingers *a*, cut the article which passes between them. The ol is moved along by hand by means of the handle J, and may be oved in either direction. The socket B protects the hand from the wer universal joint *g*.

Claim.—Operating the lever or plate D, by means of the eccentric upon the shaft *e*, said shaft being connected by a universal joint *g* o the compensating shaft formed of the tube E and rod F, the rod eing connected to the driving shaft G by a universal joint *h*, as shown nd described.

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o. 14,354.—LUTHER B. FISHER.—*Improvement in Machines for Shearing Sheep.*—Patented March 4, 1856.

The nature of this improvement consists in a series of bars or braces *g*, *h*, *i*, &c., so combined with a spring which comes within the grasp f the hand as to increase the motion, doing away with the necessity f complex gearing.

The inventor says: I am aware a sheep-shearing machine has been evised, in which a combination of racks, pinions, pawls, spur-wheels, c., are used for vibrating the cutters. I do not, therefore, lay any laim to such a machine; but I *claim* so constructing the shears that ie mere clasping of the hand, or operating of the fingers, in which the hears are held and controlled, shall produce a multiplied motion of he cutters; and this I claim, whether said multiplied motion be proced through the jointed levers herein described, or their equivalents.

No. 14,840.—Robert M. Wilder.—*Improvement in Sheep-Shears.*—Patented May 6, 1856.

By moving the handle A in the same manner as the ordinary spring-handle shears, the machinery is set in motion, giving a circular motion to cutter G.

The inventor says: I do not claim operating the shears by the grasp of the hand, as this has been done; but I *claim* the rotary cutter, in combination with the spring-handle A, coupling-rods B, levers C, spring-pawls D, spur-wheel F, and wheels connecting spur-wheel with cutter wheel, or equivalents thereof, arranged and operating substantially as and for the purposes set forth.

No. 16,264.—Wm. W. Bryan.—*Improved mode of securing Braces in the Snath of a Grain-Cradle.*—Patented December 23, 1856.

The braces of the fingers where they pass through the snath, are secured in said snath by means of the wedge-formed pins C, as represented in the engraving.

Claim.—I do not claim the form or construction of the bolt, separately considered.

I claim the application of a wedge-formed bolt or pin, in the manner and for the purpose set forth and described.

No. 14,629.—Jesse Lincoln.—*Improvement in Machines for Sowing Seed Broadcast.*—Patented April 8, 1856.

The teeth *i i*, on the hub of one of the wheels, and the spring *s*, in combination with the rod J and arm I, give the roller H a rocking motion, that causes the slots *c c* to enter the hopper G, to receive and discharge the grain.

The slide L serves to regulate the size of the openings in the bottom of the hopper.

Claim.—In combination with the hopper G the seeding roller H, provided with open cells *c* passing through it, and rocked through the hopper to receive and discharge the grain broadcast, substantially in the manner described.

No. 14,274.—Edward F. Berry.—*Improvement in Machines for Sowing Seed Broadcast.*—Patented February 19, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The perforated sowing cylinder C, and the secondary internal perforated distributing cylinder I^2, connected with the hopper G at its centre by the tubes I I, with its central portion or tube enlarged, so as to distribute the seed evenly to the whole length of the lower portion of the sowing cylinder, in order that the seed may be cast or sown evenly broadcast over the soil, essentially in the manner and for the purpose fully set forth.

No. 14,630.—Peter Lawrenson.—*Improvement in Machines for Sowing Seed Broadcast.*—Patented April 8, 1856.

As the carriage is drawn forward, the feed-screw brush-wheel G revolves, and the screw L feeds out the seed from the hopper A through the opening D into the fan case C, where it is operated upon by the brush wheel and discharged by the blast of the fan E through the opening F. The vanes H prevent the seed from being scattered to too great an extent.

Claim.—The employment of a fan blower in connexion with a brush wheel, and in proper relation to the discharge of a seed hopper, substantially as and for the purpose set forth.

No. 14,837.—Enos Strimson.—*Improvement in Machines for Sowing Seed Broadcast.*—Patented May 6, 1856.

As the machine is drawn along, the hollow arm or tube F will be rotated by means of the gearing as shown, and the grain in the hopper A will pass down through the tube *d* into the hollow tube F, and will be thrown out by centrifugal force. The valves L are kept closed by springs e^1, while the ends of the arms are passing round one half of its revolution at the front of the machine; but as they perform the other half revolution, the friction rollers *h* pass into the recess *i* in plate M, which recess acts like a cam, and the valves are thereby opened and the seed thrown out.

Claim.—The rotating horizontal arm or tube F, provided with valves L at its ends, and used in connexion with the adjustable board or plate M provided with the semi-circular recess *i*; the above parts being constructed, arranged, and operating substantially as shown, for the purpose specified.

No. 16,322.—E. K. Haynes, assignor to A. M. Moore, and N. H. and E. K. Haynes.—*Improvement in Machines for Sowing Seed Broadcast.*—Patented December 23, 1856.

As the machine is drawn along, the shaft B is caused to revolve, and the upper end of it agitates the seed in hopper G, which then drops through the passages *a* down on the scattering wheel A, which also revolves with shaft B, and the grain is scattered by the action of the fan-wings *i* and the oblique directing boards *n*.

Claim.—The scattering-wheel, armed with air-agitating wings, when located between obliquely arranged parallel directing boards *n n*, for the purpose substantially as set forth.

No. 16,007.—Ormrod C. Evans.—*Improvement in Spading Machines.*—Patented November 4, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The combination of a series of forks or spade blades *m* with

p to bring bottom B into a horizontal position to receive the end of the straw, which falls through trunk A.

Claim.—The feed and discharge bottom B, in combination with the reciprocating knife projection *p*.

No. 15,485.—J. H. Gooch.—*Improvement in Straw Cutters.*—Patented August 5, 1856.

The knives D are secured to the knife-heads C, which turn loosely on the stationary shaft B; the bracket-shaped support F projects horizontally from the shaft B to such a distance as to nearly touch the rear end of the bottom of the feed-trough A, and the knives D pass freely through the space left between the trough A and the bracket F, and, as the latter serves to support the ends of the straw, the knives will effect a clean and sure cut.

Claim.—Providing a support F on the axle B, and having the axle stationary and the knife revolve on the same, substantially as and for the purposes set forth.

No. 15,674.—Shelton M. Thompson.—*Improvement in Straw Cutters.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim and engraving.

The inventor says: I am aware that the moving knives of straw cutters have been held up to the fixed knives thereof by means of springs, set-screws, and other devices. I therefore make no claim to an adjustable or a yielding knife.

But I *claim* the arrangement of the fixed knife B, the shaft A, and spring F, as described, whereby the revolving cutters are held as rigidly parallel to the fixed cutter as if they were unyielding, and are as free to yield for the passage of obstacles as those cutters which yield independently of the arms and shafts by which they are carried.

No. 15,761.—Alexander Gordon.—*Improvement in Feed-Rolls of Straw Cutters.*—Patented September 23, 1856.

This feed-roller consists of the fluted-roller B, which plays loosely on the shaft S, and is rotated by said shaft by means of projection *a* passing through a slot in the body of the feed-roller. The roller exerts a sufficient pressure on the straw by its own weight, while any variation in the thickness of the layer of the straw is provided for by the play which the roller has on shaft S.

Claim.—The construction and arrangement of the feed-roller B and shaft *s*, in the manner substantially as described, whereby the advantages set forth are secured.

No. 15,349.—GEORGE W. SWIFT.—*Improvement in Machines for Threshing and Cleaning Grain in the Field.*—Patented July 15, 1856.

The machine is confined to the ground by a pin through the piece *f*, and the team attached at right-angles to the pole A, the horses turning the machine about the securing stake, and causing wheel B to move forward and wheel C to rotate rearward. Motion is transmitted from driving-wheel C to pinion H, and from pinion H to pulley J, accelerating the latter according to the relative diameters. The driving-wheel B, turning in a reversed direction to driving-wheel C, transmits motion to pinion I, the latter meshing also with pinion H; and a double accelerating motion is thus imparted to the pulley L, which communicates motion to the threshing shaft N, and by means of the belts *d* and *b* to the fan R, and straw-carriers P and Q. The grain is fed by openings T, and, after cleaning, falls into the box U, whence it is discharged through the outlet covered by slide *e*.

Claim.—The pinions and pulleys, in combination with the travelling wheels; the double axles and the pivoting attachment *w f* for giving the driving pulley L an accelerated rotation from the rotation of the travelling wheels, either by the forward motion of the machine, or by a circular motion about its attachment.

No. 15,116.—ALFRED BELCHAMBERS.—*Improvement in Machines for Threshing and Winnowing Grain.*—Patented June 17, 1856.

The grain passes through the apron C and falls upon the chaff-screen J and then upon the wheat screen K, the blast from the fan G^1 blowing the chaff out. The grain passes through the screen K, and falls upon the screen L, and from thence into the spout M, and passes into the elevator. The tailings, heads, &c., pass off the outer end of the screen K and fall upon the screen R, and pass between the corrugated plates U V, the plate V, in consequence of the shake motion of the shoe I working back and forth, and causing said plate to thresh or loosen the grain from the heads.

Claim.—The plates or rubbers U V, placed in the shoe I, when the upper plate or rubber V is hung upon a shaft *m*, so that it may vibrate laterally by the shake motion of the shoe.

No 15,786.—ISAAC S. SPENCER.—*Improved Grain Threshing Machine.*—Patented September 23, 1856.

The grain to be threshed is placed transversely on the apron B, and is fed by said apron between the cylinders F and G, and passes from between said cylinders down between the cylinders G and H, and the straw is discharged off the end of the apron D, the grain being threshed from the straw in a perfect manner, and without breaking the straw, as the ribs pass over each other similar to a pair of shears and detach the grain from the straw.

Claim.—I do not confine myself to any precise angle of the ribs or

flanches *c*, nor to the precise form, as they may be either curved or straight.

I *claim* the cylinders F G H, provided with ribs or flanches *c* placed obliquely or angularly with their axes, substantially as described, for the purpose specified.

No. 15,917.—JOHN BARNES.—*Improvement in Grain-Threshing and Separating Machines.*—Patented October 21, 1856.

The grain is fed into the hopper *a* and passes under the threshing cylinder B, by which it is forced into the reticulated bolt C, which is slightly inclined, as represented in the engraving. The grain, as it enters the revolving bolt C, is brought in contact with a blast issuing from a branch *d* of a fan D, which blast strikes the grain and straw on the other side of the mouth of the bolt and prevents it from being carried under the cope *e*, said blast urging the passage of the straw down the bolt and separating the grain from the straw.

The inventor says: I do not claim as new a threshing cylinder B and revolving screen C, in transverse relationship to each other, when the said cylinder occupies a central position across the mouth of the screen, as such has been used; neither do I claim the introduction of a blast into the mouth of the screen to assist the separation, and urge the straw down through the screen, irrespective of the lateral and relative arrangement of the blast described.

But I *claim* the arrangement in its transverse relationship to the screen C, and across the mouth thereof, of the threshing cylinder B, on the falling side of the screen, when in motion, or mainly on said side, in combination with the introduction of the blast (by branch *d*) on the rising side of said screen, and between said side and the inner end of the cylinder's throw or action, for the better clearance of the grain from under the cope, and the more easy and effectual separation of the grain as it rises and falls, and is kept free and loose by the lift of the screen, as described.

No. 14,444.—HIRAM CLARK.—*Improvement in Threshing Machines.*—Patented March 18, 1856.

A A is a frame, with feed-rollers B B and C C and endless aprons D D. F^1 and H are pieces composed of a series of elevations and depressions, which fit into each other. The depressions of F contain openings to allow the grain to fall through. The piece E is attached to the slides I I, which receive motion from the crank-shaft J through the connecting-rods K K, the shaft J and the rolls B and C receiving motion from the driving shaft O by means of gear P R S V and T.

The inventor says: I do not claim the precise form of any of the parts, nor the use of feed-rolls and aprons in threshing machines, as I am aware such have been used; but what I *claim* is, the use of the pieces H and F for separating the grain by an action similar to that of a flail, in connexion with the rolls and aprons, or similar device, when constructed and operating in the manner and for the purposes as above set forth and described.

No. 15,074.—WILLIAM HOLMES.—*Improvement in Threshing Machines.*—Patented June 10, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The use of a series of cams H, constructed and arranged as described, for the purpose of operating beating levers D by revolving in the curves I I, or their equivalent, and striking both the arms of each of the levers D in rapid succession, giving to the downward motion of the longer arm or beater a quick whipping stroke, the whole arranged and operating substantially as described.

No. 14,462.—EBENEZER MATHERS.—*Improved Machine for Felling Trees.*—Patented March 18, 1856.

The nature of this invention will be fully understood from the claim and engraving.

Claim.—The method of straining the saw by means of the curved elastic arms C C and the adjustable bar D, as above.

No. 14,654.—ABEL H. GRENNELL.—*Improvement in Mode of Protecting Vines.*—Patented April 15, 1856.

Fig. 1 represents a perspective view, with the lattice frames extended, and fig. 2 a perspective view of the grapery as closed.

Claim.—The so constructing the lattice frames A A, B B, C C, D D, that they may be swung, with the vines upon them, into a compact form, and be protected by closing around them the double doors G and H, to protect the vines from the weather.

No. 14,865.—HORACE N. GOODRICH.—*Improvement in Winnowing Mills.* Patented May 13, 1856.

The inventor says: My invention relates to that part of the machine above D which in an ordinary fanning mill would be the top or outside case, and I lay no claim to the arrangement of parts below the point or line of the screen or screen-board D, as the case may be. The screens, of course, are to be graduated for their special purpose, and the grains or grooves into which they slide should be such as to admit of their ready removal and replacement.

Claim.—The arrangement of the screens A, B, C, D, above the ordinary screens and shoes of a common fanning mill, and furnishing a regulated blast to said series of screens, either from the main fan-wheel or an auxiliary wheel near thereto, for the purpose of comprising within one machine or frame the facilities for cleaning all kinds of grain or seeds, and separating them from each other and from the impurities mixed with them.

No. 15,444.—MIRON SMITH.—*Improvement in Ox Yokes.*—Patented July 29, 1856.

The operation of this improvement is as follows: The block *g* is adjusted so as to give the pin *p* a position over or on either side of the central line, as may be desired. By placing the pin on one side of the centre, the arm of the lever with which the ox on that side acts will be increased, and the arm of the lever on the other side correspondingly diminished. Then, as the slides J move in the slots *d*, this relation between the arms of lever is maintained for every position of the bow slides.

The inventor says: I do not claim the devices for the simultaneous movement of the bow-slides, as such are not new; but I *claim* the adjustable fulcrum block *g*, in combination with the bow-slides J J, as and for the purposes set forth.

II.—METALLURGY.

No. 15,037.—JAMES W. EVANS.—*Improved Amalgamator.*—Patented June 3, 1856.

The connecting rod K is attached to the head of the rake-bar H at one end, and at the other end to a fixed point, in order to hold the head of the rake-bar in a fixed position while its axis G and lower end is being moved, as the body of the rocker B is vibrated by means of connecting rod L.

Claim.—The use of the rake J, in combination with the rocker B, whereby a compound agitating motion is obtained.

No. 15,619,—ALVA M. STETSON.—*Improved Amalgamator.*—Patented August 26, 1856.

The auriferous dirt mixed with water flows from the trough into the upper box, the spaces between the tubes *b* being covered with quicksilver. The boxes are so arranged that, as the water flows through the tubes *b*, it will fall on the spaces between the tubes in the succeeding box. The motion of the water falling on the quicksilver causes the latter to amalgamate with the gold in the dirt, the latter being carried off through the tubes *b*. The same operation goes on in each box successively until the dirt passes through the lower box *g*, which is inclined, leaving the gold on the bottom of said box.

Claim.—The employment of the boxes *a a a*, placed in vertical succession, when said boxes are fitted with tubes or pipes *b b b*, as described, *for containing* the quicksilver and distributing the water, as set forth.

No. 14,023.—DANIEL LEIBEE.—*Improved Gold Amalgamator.*—Patented January 1, 1856.

The pans *b* and *f* being filled to the brim with quicksilver, the main shaft *a* is rotated; and the gates of the reservoir being opened, the pulverized and watered mass is allowed to descend into the hopper *j*, and thence through the pipe *k* into the top pan *h*. The stationary scrapers *h* and *i* serve to shove off and discharge the metallic debris into the trough *f*. As the pan *b* becomes charged with amalgam, a portion of its metallic contents will overflow into the pan *f* along with the debris removed by the scrapers, and the debris from this are again scraped into the trough *l*, and, being stirred by the agitators *m*, the metallic substances precipitate to the bottom, while the sand or water escape over the edge.

Claim.—I *claim* as new, and of my invention, the use of the reservoir and spout in connexion with the revolving pan and scrapers operating with the stationary trough and agitators, constructed and arranged in the manner and for the purpose as set forth.

No. 15,524.—WARREN S. PIERCE—*Improved Gold Washer and Amalgamator.*—Patented August 12, 1856.

Quicksilver is placed between the ledges *a* and the top of the furnace B, and as the quicksilver thus becomes heated it is better adapted to form an amalgam; the fine particles of gold that escape over the ledges *a* pass through the screen C, and are arrested by the sponge E enclosed between the screens D. As the sides of the case A taper, the stream of water passing through it is retarded in its velocity as it approaches the discharging end, so that the fine gold will have an opportunity to pass through the screen C, and not be carried over it.

Claim.—Constructing the washer or separator substantially as described, viz: having the furnace B placed within the case A, which has oblique or taper sides, the ledges or plates *a* placed on the top plate of the furnace, and the screen C and the sponge E, which is fitted between the screens D, placed in the case A, the whole being arranged as shown, for the purpose specified.

No. 15,147.—N. C. SANFORD.—*Improvement in Auger Handles.*—Patented June 17, 1856.

By turning the screw C, the plate D will be brought snugly up against the under side of the handle, which will, in consequence, be firmly secured in the eye.

Claim.—Fastening the stick or handle in the eye of the auger shank by means of the screw C passing through the eye B, handle E, and into a recess *a* in the shank, in combination with the clamp or screw-plate D on the underside of the stick within the eye, and operated by the screw.

No. 14,561.—GEORGE G. GRISWOLD.—*Improved Method of Manufacturing Augers.*—Patented April 1, 1856.

The plate *a* is about one-quarter thicker at the shank B and flat, while the remainder of the plate is formed in a convex shape. A plate of this form will be much stiffer when twisted.

Claim.—The form of the plate required for making the twist to the auger or bit.

No. 15,656.—WARREN HUNT.—*Improved Machine for Testing Axes.*—Patented September 2, 1856.

The axe to be tested is slipped up upon bar C, towards the standard B, until it fits tight. The gauge-plat E is then allowed to descend upon the edge of the axe D, when, by placing the eye over slot *f*, the smallest variation from truth may be detected.

Claim.—The described method for testing the trueness of axes, consisting essentially of the bar *c* and slotted gauge-plate E, operating in the manner substantially as set forth.

No. 15,880.—DAVID B. ESTEP.—*Improvement in Making Axe Poles.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The manufacture of axe poles by compressing one half only of the axe pole at each operation between dies or swages of the shape described, projecting from the face of the rolls in which they are set, so that the axe pole can be inserted and withdrawn without coming in contact with the rolls, in combination with the use of the adjustable guide *g*, either attached to the dies or separate therefrom, for the purpose of applying the pressure necessary to form the axe pole, in such a manner as to leave any excess or deficiency of iron in the head of the axe pole, thus securing exact uniformity in the two sides of the axe pole, and enabling axes of various size to be made from the same dies by simply adjusting the distance of the rolls and the guage, substantially as described.

No. 14,704.—BENJAMIN JAMES, assignor to ROSWELL E. JAMES.—*Improved Awl Haft.*—Patented April 15, 1856.

The chamber D within the instrument is intended to hold awls or other tools of different sizes. By means of the hammer head I, the tool may be used for making a hole for the insertion of a peg or nail, as it is calculated that the whole of the shaft will be constructed of metal.

The inventor says: I do not claim making an awl haft with a chamber within it for the reception and holding of awls or other tools; but I *claim* my improved mode of constructing an awl haft, viz: of two levers A B, crossing one another, turning on a common fulcrum C, and

ovided, not only with jaws *a b*, like a pair of pincers, but with a amber D, in one or both of the handle arms of said levers.

I also *claim* joining the rear end or part of one of the levers with an tension S, and so as to lap over the end of the other lever and receive a entire hammer head I upon it.

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o. 14,695.—JAMES MCLELLAN.—*Improvement in Repairing Railroad Bars.*—Patented April 15, 1856.

The rail, being fitted in the groove *a* of the cooler, has only its upper anch, and the bar or piece of metal to be welded to it, exposed to the ction of the fire, the lower flanch and the centre of the rail being protected by the cooler D.

The inventor says: I do not confine myself to any precise form of ooler or groove therein, for it is obvious that the cooler and groove must be varied according to the nature of the work to be done; but I *claim* placing the rail or bar H to be heated within a cooler D, which is fitted within the furnace A, and supplied with water from a reservoir E, at the outer side of the furnace, the cooler being so formed or arranged as to encompass or be in contact with the parts of the rail or bar not designed to be heated, substantially as described for the purpose specified.

No. 15,687.—JOSEPH D. CAWOOD.—*Improvement in Repairing Railroad Bars.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the laim and engraving.

The inventor says: I do not claim the anvil bar or its recesses; but *claim* the movable press block D, having its edge formed to the side f the rail G, in combination with another block D, with its edge of a imilar but reversed form, the movable block to be operated by two ams, or in any other convenient manner, for the purpose of pressing etween them a T or otherwise shaped rail, thereby facilitating the ifficult operation of welding or renewing the ends of such rails after hey have been damaged, in the manner described and for the purpose et forth.

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lo. 14,876.—HORACE LETTINGTON.—*Improvement in Fastening Bits.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and ie engravings.

Claim.—The rod or arbor D passing transversely through the stock r bit A and a portion of the socket B. The rod or arbor having a otch *d* in one side, and the shank *b* of the bit C also having a notch *a* 1 one side, and the rod having a bolt E pressing against it.

door upon its hinges, the closing motion raising the bar, and the ing or outward motion depressing the same.

Claim.—An arrangement of bolts or bars, which are self-acti the manner or an equivalent manner to that described, and for th poses set forth.

No. 15,729.—EBENEZER COLEMAN and PHILEMON COLEMAN.—*Im ment in Heading Bolt.*—Patented September 16, 1856.

The blanks to be headed are placed between the jaws F, an tion being given the shaft B, the arm *b* is depressed by means lever N, and the projection *a* on shaft B will strike against the p *b*, and the slide D will be shoved forward, the die E partially fo the head on the blank; the jaws F are closed so that the dies grasp the blank, while the head is being formed by bars a^1 attac the slide D. The slide D and die E are drawn back in conseq of the projection *n* on shaft B striking against the arms *o*, and the L is also drawn back, being connected with the slide D, the j being expanded by a spring a^2, and the incline K actuates the p and the treadle I being depressed by the foot of the attendant, t lers *h* grasp the blank which is rotated between the jaws in conseq of the pawl *l* rotating the ratchet roller *i*, the rollers bearing a the blank. The blank is rotated a quarter of a revolution, and th ration of heading, as described, is repeated until the head is form

Claim.—The levers H H, with rollers *h h* attached to them, a ratchet roller *i* attached to the pendant plate G; the above parts arranged and operated as shown, for the purpose specified.

Further, the heading die E and jaws F F, provided with di

then depressed, and the cam W^1, operating upon projection *b*, returns the bolt-holder to its position beneath the upsetting punch M, which now descends to upset the metal for the head; the punch M is then drawn up, and the side punches *i* come up and form two opposite sides of the bolt-head; as these recede, the bolt-holder is caused to make one fourth of a revolution, the wheel Z taking into wheel B^1, and D^1 into E^1. If a six-sided bolt is required, wheels Y and A^1 are made use of, which gives the bolt-holder one sixth of a revolution between each operation of the punches. The upsetting punch now descends again, and the side punches are brought up to form two new faces of the head. The side and top punches thus alternate with each other until the bolt-head is completed, when the operator raises the lever Y^1, and the sleeve U^1 is caused to descend, and the cam W^1 (which previously operated upon pin *b* to throw the bolt-holder in the position represented in fig. 2) is brought to bear upon the pin *c*, by which means the bolt-holder is thrown into position represented in fig. 3 by dotted lines, when the rod A^2 (supported at *g*) will rise within the bolt-holder and force out the bolt, as will be understood from fig. 3.

Claim.—1st. The two side punches operating simultaneously and equally upon opposite sides of the bolt, in combination with the intermittent rotary motion of the bolt-holder, for the purpose of finishing the bolt-head, with its centre in the axis of the shank, as set forth.

2d. The forward and back motion of the bolt-holder when the rod A^1, which ejects the bolt, is supported at a point in advance of that on which the bolt-holder vibrates for the purposes of ejecting the finished bolt, as set forth.

No. 16,228.—WILLIAM E. COPELAND.—*Improved Spring Bolt.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventor says: I do not claim combining a lever with a bolt, and for the purpose of moving the said bolt rearward, because such is a very old application of a well known device.

Nor do I claim so combining a lever with a spring bolt and its case as to operate the bolt, substantially in the manner as described in the specification of the patent of Bush—that is to say, so that it shall operate not only as a cam lever, but as a stop.

Nor do I claim applying to a bolt or a rod a lever and a stop, and in such manner that the bolt or rod not only may be moved by power applied to the lever, but may be stopped or held in place by the stop acting against the lever; for such is an old and well known contrivance.

But I *claim*, as an improvement on the invention as patented by the said Bush, my improved arrangement of the stop lever H with respect to the bolt, and so as to operate therein, and into and out of the bolt case, substantially as specified.

I also claim combining with the main spiral spring D the secondary and separate spiral spring E, or its equivalent, when the bolt is ap-

plied to its case, and the springs are arranged within a trapezoidal recess or chamber of the bolt, and made so as to operate essentially as specified.

No. 14,381.—GEORGE WOODWARD.—*Improvement in Heading Bolts.*—Patented March 4, 1856.

In heading a long bolt, after the upper end of it has been heated, the lower end of the bolt is passed through the passage M, and the upper part is inserted between the jaws *c d*. The bolt being regulated to the required length, the workman depresses the treadle N so as to move the levers A and B and to confine the bolt between the jaws, while he hammers down and forms the head on it.

Claim.—The two oscillating shanks or levers A B, when combined in the manner as specified with the suspended and bent toggles K L and the perforated treadle N.

No. 14,086.—H. M. CLARK.—*Improvement in Machines for Heading Bolts.*—Patented January 15, 1856.

The general features of this improvement will be understood from the claims and engravings.

Claim.—1st. The arrangement herein shown and described of the two heading dies N *n*, when operating together, in such a manner that, while neither die is in motion or at rest without a like action of the other, the one or internal heading die *n* receives an abrupt accelerated motion towards the close of the joint advance movement of the two dies, by means of the arrangement of the dies in the general slide O, in combination with the lever *q*, or its equivalent, acting in concert therewith, essentially as and for the purposes set forth.

2d. Giving the gauge *f* the several intermittent movements specified—upwards, downwards, and laterally—whereby, after performing its office of gauging, it moves away to give room for the heading dies to operate, and afterwards suddenly descends to detach the bolt from the clamp, and by said action or blow to clear itself of any adhering scale or dirt, as described.

No. 16,301.—WILLIAM HANNAH, assignor to L. H. BOWEN and WILLIAM HANNAH.—*Improved Machine for Trimming Bolts.*—Patented December 23, 1856.

In using this instrument, the eccentric lever C is raised sufficiently to allow the cutting edge of the sliding die *a* to recede sufficiently and to open the space to allow the article to be cut to pass through; then by holding firmly the lever A, and pressing down the eccentric lever C, the sliding face plate B, with the sliding die, is pushed forward, cutting off the screw as desired.

Claim.—The arrangement of the sliding and stationary dies *a a*, as described, and operating with the sliding face-plate B, in connexion with the horizontal lever A and eccentric lever C, for the purpose set forth.

No. 14,633.—Robert G. Pine.—*Improved Machine for Polishing Buckles.*—Patented April 8, 1856.

Motion is given to the shaft J^1, and the shafts E E B are rotated by their respective belts L H; the spiral springs *f* keeping the face of the buckles A^1 against the periphery of the polishing wheel C, and the guide wheels D D preventing the buckles from bearing too hard against the polishing wheel. As the shafts E E rotate, they gradually move longitudinally, in consequence of the screw-threads *d d* in the bearings *e e*, and consequently the whole outer sides of the buckles will be polished.

Claim.—The combination of the polishing and guide wheels C D D with the rotating and longitudinally moving shafts E E, provided with clamps F^1, the shafts E E working in yielding or elastic bearings, substantially as shown, for the purpose specified.

No. 14,442.—William Butler.—*Improvement in making Chilled Castings.*—Patented March 18, 1856.

A is a cast-iron box; B is a sand core; C^1 C^2 are the hollow chill cores; D D are the ends of the box; its inner surface D D is chilled at each end by means of the chill cores C^1 C^2. The hollow chill cores C^1 C^2 are placed a sufficient distance apart to form the chamber by means of the sand core B. The sand core B is formed by forcing the sand through the hollow chill cores C^1 C^2 into the chamber, after which the cores are dried and set in the mould ready for casting.

Claim.—The combination of the hollow chill cores C No. 1 and C No. 2 with the sand core B, for the purposes of obviating the difficulty of warping and springing attending the casting of iron boxes on chills, and thereby a chamber in the box, and in the manner and for the purposes within described.

No. 15,427.—F. R. Langwith.—*Improved Clamp for Plumbers.*—Patented July 29, 1856.

The pipe G is clasped by the box A B, while the lever H is inserted in place of the barrel *a* of the cock F. If, however, the lever C is used, it will clasp the cock at its lower end by the box J, as shown in fig. 1; and by the nuts E E on the bolts D D acting on the levers H or C, it can be adjusted and firmly held while soldering the shank of the cock to the pipe at C.

Claim.—The combination and arrangement of the clamp box A B, and the clamping levers C and H, when either is used; and also in combination therewith the screws for adjusting the cock in a proper position during the process of soldering with the main pipe, when arranged and operating substantially as described.

No. 16,115.—EVAN L. EVANS.—*Improvement in Curry-Combs.*—P
November 25, 1856.

The nature of this invention will be understood by referenc
claim and engraving.

The inventor says: I do not claim simply constructing curry
with flexible backs, for this has been previously done.

But I *claim* constructing the curry-comb with an elastic or
back A, formed of India-rubber, and securing the teeth *a* perm
in the back, by having the India-rubber, which encompasses th
project from the face of the back, in the form of ridges *b* and
projecting to the point of the teeth, substantially as shown
scribed.

No. 15,560.—GEORGE FETTER and JOHN S. MCCLINTOCK.—
ment in Coupling-Pipes.—Patented August 19, 1856.

C represents a tapering ferrule, having a raised portion *b*,
or eight sides, and on the inside a number of projections *d;* this
is placed on the end of the pipe B, and a tapering plug G i
into the end of the same, which forces the lead against the i
the ferrule, and causes the projections *d* to penetrate the lead
a manner that the pipe cannot turn without the ferrule. Th
cock D is then connected with the pipe by screwing it into th
and the end of the cock is provided with a small smooth portic
the purpose of guiding said screw, and preventing the lead from
up inside the pipe.

The inventors say: We do not claim exclusively the encl
the ends of lead pipes, in a tapering ferrule of metal harder th
for the purpose of attaching connexions thereto, and the use
and left handed screws on such connexion.

But we *claim* the tapering screw, terminating in a smo
rounded end on the connexions, for the purpose of guiding
screw, and preventing the lead from burring up inside the
combination with a tapering ferrule on the end of the lead pi
ferrule having any convenient number of projections for preven
pipe from turning within the ferrule, while the end of the sa
nexion is being screwed into the pipe.

No. 15,512.—CHARLES R. GARDNER.—*Improvement in Dies for
Blanks.*—Patented August 12, 1856.

The shape of these dies is represented by the illustration f
representing a top view of the face of the die, the oblique paral
showing the grooves in the face; figures 2 and 3 represent tra
sections. The blank is placed between the two dies, and by
the upper die over the lower one, under a heavy pressure, the
sion of the screw thread is produced on the blank; figure 3 re
the shape of the blanks for cutting gimblet-pointed screws, and f

represent the sides of the dies, the slope *b* and elevation *a* being required to point said screws at the same time that they are threaded.

Claim.—The elevation *a* and the slope *b*, each substantially as described, and for the purposes specified.

No. 15,278.—William M. Booth & James H. Mills.—*Improvement in Dies for Stamping or Pressing Sheet Metal.*—Patented July 8, 1856.

The blank is placed upon the face of the lower die; the upper die is forced upon it; the movable part, B and G resting upon springs I and D, recede until they find their bearings in the solid part of the die, thus constantly affording support to the sheet metal, until the impression or form of the die is given; and when thus forced together, become as if they were two solid dies, and effect with a single blow or operation what, in the ordinary method of stamping with a solid die, requires a number of successive operations.

Claim.—Pressing, stamping, or forming metal by the upper and lower dies A and E, or their equivalent, the said dies being movable parts B and G, supported by springs. The whole being constructed and operated in the manner herein set forth.

No. 15,080.—Patrick McGlew.—*Improved Die-Stock for Cutting Screws.*—Patented June 10, 1856.

If the set-screw *n* is turned so as to allow the spring *l* to set the pawl D in operation, the ratchet B with its dies H H^1 will be turned when the handles are vibrated; but if D is thrown out and C let in, the dies will be turned in the opposite direction. If both pawls are let into the teeth, then the dies will vibrate with the handles.

The inventor says: Ratchet drill stocks, auger handles, and wrenches are in use, and I do not broadly claim attaching screw-cutting dies to a two-way or double ratchet moved in either direction as desired by adjustable pawls, which are operated by vibrating handles. Nor do I broadly claim the employment of a cam or cams E for tightening screw-cutting dies. Neither do I claim adjusting the pawls by set-screws *m* and *n*.

But I *claim* the arrangement of one or more dies H H^1 within a circular two-way ratchet B, which is moved by adjustable pawls C D, as herein described.

No. 14,834.—Willard H. Smith.—*Improved Door-Fastener.*—Patented May 6, 1856.

To apply the fastener to a door, place the hooks of the staple *a* against the rebate of the frame, the wings *e* e^1 being folded out of the way, then close the door, forcing the hooks of *a* into the frame, open the wings, placing them square across the line of the door; then turn

the screw nut *d*, and the wings of the p.ate will accomodate themselves to the jamb, moulding, and door.

Claim.—The use of the screw nut *d*, working on the hinged stem *b*, as a means of adjustment of the plate *e e*, when employed in combination with the staple hook *a*, all operating in the manner and for the purposes substantially as set forth.

No. 16,048.—LEGRAND CROFOOT.—*Improved Door-Fastener.*—Patented November 11, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Combining the two plates A and B, constructed in the manner described, with the spring bolt of the plate A and the eye-hook of the plate B.

No 16,282.—JAMES LETORT.—*Improved Door-Fastener.*—Patented December 23, 1856.

The blade 1 is placed, as far as the shoulder *b* thereof will allow, with the hooks *a* towards the jamb; the door is then closed; and if the blade 1 is not thick enough to force the hooks *a* into the wood of the jamb, then the blades 2 and 3 may be turned over blade1. The door A being now closed from the inside, the lever-bolt 4 is inserted in the square hole 5 of the blade, thus fastening the door.

Claim.—The employment of the bent lever bolt 4, when in combination with the blade 1, or the additional blades 2 or 3, substantially in the manner and for the purposes set forth.

No. 14,594.—G. H. LINDNER.—*Improvement in Door-Fasteners.*—Patented April 8, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The two catches *a b* provided with hooks or curves *d e* at their ends, which hooks or curves pass around the pin D attached to the sill or lintel of the door or window frame; the catches being fitted within the case B which is attached to one of the doors or windows, the catch *b* being provided with projection *g h*, against which the bar *c* attached to the other door or window acts, substantially as shown, for the purposes specified.

No. 14,773.—ELISHA P. MOULTON.—*Improvement in Door-Fasteners.*—Patented April 29, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—Constructing turn buttons or fasteners, the stem E and head of the button B being in one piece, and having a collar F at its end that

prevents the button from being withdrawn from its frame by the strain brought on the head of the button by the door which it secures, the stem of the button having a square part that is pressed against by a spring C.

No. 14,112.—Reed Peck.—*Improvement in Door Fastenings.*—Patented January 15, 1856.

The standard is made in two parts A and B, which are guided in their motions up or down by straps *a a* fastened to the door. By means of the pinion *d* the upper end of B and the lower end of A will move simultaneously into or out of the mortises in the floor and top beam. A spring b^1 is fastened to the door, and the spring-latch a^1 prevents the standard B from rising as long as the door is open. In closing the door the top of the spring strikes the beam before the door gets to its place; and as the door is carried along, the lip on the spring is drawn from the top of the standard, when (by reason of the gravity of the lower standard A) the standards will fasten the door at the top and bottom.

Claim.—The combination of the spring with the gearing, by which the standard is rendering self-fastened, substantially as described.

No. 15,332.—Henry H. Elwell.—*Improved Door-Knob.*—Patented July 15, 1856.

The nature of this invention can be understood by reference to the claim and illustration.

Claim.—Dividing the spindle diagonally, and providing a screw-hole *b* in one end of each of its sections *c c* at right-angles to the division line.

No. 15,357.—Jeremy W. Bliss.—*Improvement in Door-Knobs.*—Patented July 22, 1856.

The nature of this invention can be understood by reference to the claim and illustration.

Claim.—The employment of the intermediate piece *c*, having a cut or rucket surface corresponding to and secured upon the spindle *b* by the set screw *d*, at any desired point, in the manner herein described.

No. 14,595.—Nathan Benham.—*Improvement in Fastening Door-Knobs.*—Patented April 8, 1856.

The nature of this invention consists in the fastening of knobs of doors of different thickness to any distance on the shaft without the aid of washers.

The screw C, being screwed down in the slot E, presses outwards the sides *s s* of the shaft B, to fit the wedge-shaped holes D in knobs A.

Claim.—The use of the slotted shaft E with the wedge-shaped hole D, said shaft being opened by a screw, or its equivalent, in the manner substantially herein set forth.

No. 16,047.—ALMON COOLEY, assignor to RODERICK TERRY and Himself.—*Improvement in Fastening Door-knob Spindles.*—Patented November 11, 1856.

The spindle S passes through the door D and lock in the usual manner. The slide C is placed on the spindle and pushed up to the washer of the door. The knob K is then screwed on to the slide C, and the shoulder in the socket forms the flexible part of the conical slide down to the sides of the spindle and holds it fast.

Claim.—The conical slide C, when combined with the spindle S and knob K, and constructed in the manner described for the purposes specified.

No. 14,326.—DAVID G. SMITH.—*Improved Door-Spring.*—Patented February 26, 1856.

One end of the arm E is laid into the hook *f*, so as to move together with the door B, whereas the other end of it is hinged at *i* to the spring-barrel *b*.

Claim.—The use of the lever E, in connexion with the barrel *b* and spring *c c*, constructed and operated in the manner described.

No. 14,691.—GEORGE W. GRISWOLD.—*Improved Door-Spring.*—Patented April 15, 1856.

The nature of this invention consists in making the arm or rod F itself the spring, and so pivoting it at C to the loop E of the plate D that it may be furnished with a friction-roller *i*, whereby torsion of the metal is prevented.

Claim.—The arm F, with its attachments to the door and frame, when said arm serves the purpose of spring and lever for closing, holding, or opening the door, substantially as described.

No. 14,686.—GILBERT L. BAILEY.—*Improved Door-Spring.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I do not claim a coiled spring in connexion with a crank, for these are well known devices. Neither do I claim having the spring act most powerfully when the door is closed as new. I am also aware that a toggle-joint has been used heretofore for various purposes, and I do not claim this in itself as my invention.

But I *claim* the spring E, crank-arm H, and rod D, constructed and operating in connexion as described, so that the crank-arm turns inward whilst opening the door.

No. 15,555.—JOHN BROUGHTON.—*Improved Door-Spring.*—Patented August 19, 1856.

A A represents a portion of the door, B a portion of the door-jamb. The door is hinged, as at *a*, to the jamb in the ordinary manner. Fig. 1 represents the door as being closed. By opening the door the leaves *c* are caused to unfold in the manner illustrated in figs. 2 and 3, and consequently the quadrantal projections *e* are turned so as to cause the elastic tugs *f* to coil round them, and thereby to become shortened, and consequently to draw the end of each of the springs D towards the edge of the door and jamb, and thus bring the springs D into action and cause them to exert a powerful strain upon the leaves *c* of the hinge, and when the door is set free cause them to fold together and close the door.

Claim.—The employment of an additional hinge C, unfolding and folding the reverse of the hinges *a*, and having formed on each side of its leaves a quadrantal or other suitable projection, in combination with the flat or other suitable springs D D^1, substantially as and for the purpose set forth.

No. 14,583.—ALVIN BARTON, assignor to himself, A. R. MORGAN, and J. M. PARSONS.—*Improvement in Door-Springs.*—Patented April 1, 1856.

The case A contains a spiral spring R, which acts upon the shaft of the wheel E. The two gear-wheels F and E, having their shafts out of their centres, are made of an elliptical form. One end of the rod L is attached to the shaft of wheel F, and the other end to the pulley T. As the door opens, the pulley T runs on the rod towards the hinge-side of the door, and consequently its power is lessening, while it increases when the door closes. This effect is attributable partly to the eccentricity of the gearing, and partly to the changeable point of action of the lever on the rod T.

Claim.—The employment of eccentric cog-wheels E and F, as described, in combination with the coiled spring-lever and guide-rod attached to the door or gate, as set forth.

No. 15,864.—ALEXANDER J. WALKER.—*Improved Bracket for Door-Springs.*—Patented October 7, 1856.

The part A of the bracket is intended to be inserted into the socket C. The holes B and C are made of the same size and shape as the end of the spring H, and are to receive and hold it when in operation. They are so placed that the corner of one faces a side of the other, so that, by changing the spring from one to the other, its power can be regulated by eighths instead of by fourths of a turn. The socket C is to be fitted into the door or casing K.

The inventor says: I do not claim the application of steel rods to doors to act as springs.

I *claim* constructing one of the brackets, used for attaching such rods,

with an additional hole for receiving and holding them when in operation, said additional hole bearing such a relation to the first that, by changing the spring from one to the other, greater nicety can be observed when applying it, in regulating the power with which it shall act; and attaching to said bracket a lever to assist in twisting the spring when applying it.

I also claim securing said bracket in its place by means of a socket inserted in the door or casing, or any other means substantially the same, that will instantly secure it, after it has been applied to the spring, and the necessary power obtained, and will also allow of its being easily removed and reattached when it is desirable.

No. 15,493.—ANSON H. PLATT.—*Improved Door-Stay.*—Patented August 5, 1856.

When the lever *a* is pressed downward so as to stay the door, the dog *5* passes over the notches *b*, and retains the bolt in any desired position from moving upward. To liberate the door, the upper end of the dog *5* is pressed inward; the lower end will be raised from the notches, and the spring *d* will carry upward the lever *a* and the bolt connected therewith.

Claim.—The use of the bolt 6, the lever 7, and the dog *5*, arranged and operating in the manner and for the purposes set forth.

No. 15,912.—STEPHEN A. WHIPPLE and HERNAN WHIPPLE.—*Improved Machine for Cleaning Emery Wheels.*—Patented October 14, 1856.

The nature of this invention consists in bringing the surface of the emery wheel F, or emery band H, in contact with the upper surface of a revolving roller D, that is partially immersed in water, whereby, as the roller D rotates, only the surface of the band or wheel is moistened, and the emery or polishing material as it is washed off is deposited in the water of the trough C and saved for future use.

The inventors say: We are aware that rollers partially immersed in water or other fluid have heretofore been used for a variety of purposes, therefore we do not claim the same. But we *claim* the use of the roller D, revolving in contact with the water, and the superincumbent wheel F, substantially as and for the purpose set forth.

No. 14,881.—JAMES L. NORTON.—*Improved File-Cutting Machine.*—Patented May 13, 1856.

The spiral worm *k* being in gear with a rack R of the carriage-block, the latter advances until a projection or trigger *m* comes in contact with a projection *o* of the lever S, which, being up to that moment hooked into another lever T of the fulcrum *p*, is thus made to trip, and detaches the latter. The lever T thus detached is drawn by spring V towards the pillar-block P, and brings the up-

right U under the tooth *h*, which movement stops the motion of the chisel by disconnecting said tooth *h* from the action of the cam-plate Q. This short end of T is forked, and holds with its fork the bolt *q* of the pillar-block O; and thus, by the movement just described, the latter is moved in the direction of the arrow, and turns at the same time the pillar-block P on its fulcrum *f*; this latter movement turns the cam-plate Q and spiral cam *k* obliquely to the rack R, and thus disconnects them. The carriage-block now slides backwards by the falling of the weight W.

Claim.—1st. Hanging the worm-wheel shaft N in movable bearings P O, so that the worm may be disengaged from the feeding rack without stopping its motion to do so, for the purpose of allowing the carriage to run back and be set for the next series of nicks.

I also claim, in combination with the movable shaft, the adjustable projection *m* and levers S T, for first holding and then disengaging the shaft to admit of its swinging.

I also claim, in combination with the sliding-carriage C, the projection *t* and adjustable former Y, for keeping the blank at a uniform distance from the nicking tool for the purpose of equalizing the force of the blow, notwithstanding the taper of the blank.

I also claim the use of the spaces 1 2 3 for regulating the force of the spring upon the nicking tool.

No. 15,525.—GEORGE M. RAMSAY.—*Improved Files.*—Patented August 12, 1856.

The nature of this invention consists in making flat files in pairs, with right and left cutting corners, with grooves in accordance with the same, for the purpose of working in sharp angles or sharpening saws, in place of using three cornered files.

Claim.—Constructing flat files in pairs, or with right and left cutting edges or corners, as described. Also in making the grooves to run in the manner described, in combination with said files, all substantially as set forth.

No. 14,189.—MAJOR H. FISHER, assignor to JOSEPH A. HYDE.—*Improvement in Cutting Files.*—Patented February 5, 1856.

The nature of this improvement will be understood from the engravings, wherein *e* represents the chisel.

Claim.—The sliding and self-adjusting chisel-holder *g*, constructed and operating substantially as described.

No. 16,064.—CHARLES MILLER.—*Improvement in Cutting Files.*—Patented November 11, 1856.

Motion being imparted to the shaft J, the cam I operates on the under side of stop *d*, and raises the chisel H, and the descent of the

chisel to strike the blow is produced by the action of spring *e*. As the chisel strikes its blow, the nut *f* comes in contact with the top of stock G, which serves as a stop thereto, and thus serves to prevent the further movement of the chisel, and hence regulates the depth of the cut.

The inventor says: I do not claim the mere employment of a stop to regulate the depth of cut of the chisel.

But I *claim* fitting the chisel to work in a stock which rests upon the file blank itself, or on a pattern of similar form moving with it throughout the whole length of the movement of the blank under the chisel, and serves as a stop to the chisel, substantially as and for the purposes described.

No. 15,867.—MILTON D. WHIPPLE, asignor to A. B. ELY.—*Improvement in Cutting Round Files.*—Patented October 7, 1856.

The blank is sustained in an angular bearing *a* (fig. 2) in the bed R, which is secured to the top of the standard Q, rising from the table C. Motion being imparted to the shaft D, the wipers *b* operate the arms X, which thus cause the shafts V to vibrate; to these the helves U carrying the cutters T are attached. The cutters are thrown against the blank H by means of the springs Z. At the smaller portion of the blank, the cutters, having a longer distance to travel, will be more resisted by the springs A^2, and a lighter blow will be transmitted to the blank.

Claim.—1st. Operating upon the blank immediately beyond its point of support, in the manner and for the purpose substantially as described.

2d. Feeding the blank forward and rotating it upon its axis as the cutting proceeds, when it is operated upon by the vibrating cutters, in the manner substantially as set forth.

3d. The method described of operating the cutters by means of the wipers *b* and the springs A^2 and Z, whereby the force of the blow is diminished as the size of the blank decreases, as set forth.

4th. Forming the cutters of circular disks or of portions thereof, in the manner and for the purpose substantially as set forth.

No. 14,575.—WILLIAM RODGERS and ABRAHAM BANNON.—*Improvement in Forge Fires.*—Pateented April 1, 1856.

A is an additional tweer, on the opposite side of the fire. This tweer is constructed like the other, with the exception of its being made to move back by means of lever B, in order not to interfere with the taking out of the loop. The bottom of the hearth C diverges from a straight line.

Claim.—We claim the forge-hearth C, as described, when employed in connexion with the tweers D and A, operated by the lever B, the whole constructed as set forth.

lo. 15,571.—CHARLES PARKHUST and CHARLES WEED.—*Improved Machine for Forging Horse-Shoe Nails.*—Patented August 19, 1856.

The main features of this invention will be understood by reference o the claims and illustrations, a detailed description of which would ake up too much space to be given here.

The inventors say: We *claim* making the nail-guide M movable p and down, with respect to the anvil B and its top hammer D, nd the lateral hammers E and F, when said anvil is made stationary, s specified, said improvement being advantageous in several respects. Ve do not claim moving the nail-guide M towards the cutters P and ; but what we do *claim* is, the combination of mechanism for opera- ng said nail-guide, or moving it from the anvil to the cutters, and re- aining it between the cutters during the descent of the vertical slider , far enough to separate the nail from the rod, such combination con- isting of a lever, latches R and W, the eccentric S, the rocker lever N, nd the springs V and X, applied to the guide-tube M and the vertical lider L, constructed and operated essentially as described.

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lo. 14,280.—GEORGE H. CORLISS and ELISHA HARRIS.—*Improvement in Forging Thimbles.*—Patented February 19, 1856.

The shafts C can be moved in the direction of their axes by pushing od J in the direction of the arrow, for the purpose of withdrawing the eccentrics E from the stocks F, and allowing them to be moved up heir guides *h* by means of depressing the outer end of the lever K, so as to cause the lever end *g* to act upon the levers b^1 *b*. As soon as the stocks F, together with the hammers *a*, have thus been moved out of the way, the finished thimble can be withdrawn.

Claim.—1st. The employment for forging thimbles of an anvil O and hammers *a a*, operating substantially as herein set forth.

2d. In combination with the arrangement of the shafts of the eccen- trics to slide the eccentrics out of the stocks F F, which carry the hammers or squeezers; the inclined guides *h h* to receive the said stocks after the withdrawal of the eccentrics, and the levers *b* b^1 *b* b^1 and K for the movement of the stocks up the said guides to withdraw the hammers or squeezers from the interior of the thimble to admit of its removal from the machine; all arranged and operating substantially as herein set forth.

No. 15,118.—NATHAN BRAND.—*Improved Machine for Bending Hay-Forks.*—Patented June 17, 1856.

The fork is placed in a heated state on the stationary jaw A, a tine extending along each side of the jaw A. The spring handle H is hen depressed, the wings or side levers D D are forced against the sides of the stationary jaw A, and the tines of the fork are bent laterally of the desired form, corresponding to the shape of the jaw A. The novable jaw C is then brought down over the jaw A, and the edges of the jaw C bend the tines downwards, corresponding to the form of

the ledge *a*, the tines being pressed between the ledge *a* and the edge of the jaw C. The shank of the jaw is also properly formed, the proper inclination being given it by the ledge *f*, which compresses it upon the die B.

The inventor says: I am aware that numerous machines have been made with a former and vibrating arms or levers for bending pieces of wire and metal for various purposes; therefore I do not claim such devices when so used; but what I do *claim* in the above described machine for bending and giving a proper form to hay-forks which are made with two tines and a shank is, the combination and arrangement of the following devices, consisting of the stationary-jaw A, provided with a ledge or side projection *a*, the die B with a score for the shank of the fork, the hinged wings or side levers D D, operated so as to bend the tines around the jaw A, the hinged jaw C, so arranged as to give the tines the curve required and press the shank into the score in the die B, and give it the proper position in relation to the tines.

No. 15,541.—WILLIAM WRIGHT and GEORGE BROWNE.—*Improvement in Blast-Furnace.*—Patented August 12, 1856.

The blast passes from the pipe A through the cupola wall at B into the central portion C of the cupola. This chamber being thus filled with air under pressure, the air is restrained from passing upwards by the material in the furnace; the air escapes from said chamber and passes through the arches E and lateral apertures I into the furnace; and as it passes over the heated metal which is on the bottom of the cupola it becomes heated, and thus any blast which enters the furnace is heated in the furnace, without using any of the devices heretofore known for supplying furnaces with heated air.

Claim.—The general arrangement and construction of cupolas and smelting furnaces for the self-heating of the air blast by the arrangement of the chambers and air passages, as described.

No. 14,257.—CHRISTIAN SHUNK.—*Improvement in Fluxing Blast Furnaces.*—Patented February 12, 1856.

The salt is introduced through valve *e* into box *c*, and is carried to the common tuyere *b*, and through it into the furnace, by means of the blast entering through pipe *a*.

The inventor says: I do not claim originality in the use of common salt in treating iron; but I do *claim* applying and introducing common salt as a flux or solvent, or its equivalent, into blast furnaces at the tuyere or any point below the tunnel head, in the manner and for the purposes described.

No. 15,907.—GUILAUME H. TALBOT.—*Improvement in Gimlet Handle.*—Patented October 14, 1856.

In boring with this gimlet, the operator presses the handle away from him and towards the gimlet, and by so doing brings the rag wheel a^1

contact with the pin d^1, which holds it out of gear with c^1, while the g wheel a is brought into gear with c by the spring e. To withdraw e gimlet the operator pulls the handle towards him, and by that eans brings the rag wheel a in contact with the pin d, which holds it it of gear with c, while a^1 is brought into gear with c^1 by the spring . The teeth of the ratchets a c are set to engage and turn the gimlet hen the handle turns to the right, and those of the ratchets a^1 c^1 to gage and turn the gimlet when the handle turns to the left, the spring llowing the wheel c or c^1 to move back and disengage itself from a or , when the handle turns in the opposite directions to those above amed under each condition of the rag wheels.

The inventor says: I do not confine myself to the particular arrangeent or rag wheel gearing represented; but I *claim* the application ithin the stock or handle of the gimlet, or other tool or instrument, of n arrangement of ratchet or rag wheel gearing, operating substantially s described, so as to enable the tool or instrument to be rotated in ither direction, at the pleasure of the operator, by turning the handles ack and forth in opposite directions, and at the same time pushing it om or pulling it towards him—the direction of the rotation being varied y the pushing or pulling of the stock or handle.

No. 14,316.—Edward N. Kent.—*Improved Machine for Separating Gold and other Precious Metals from Foreign Substances.*—Patented February 26, 1856.

The nature of this improvement will be understood from the claims and engravings.

Claim.—The employment of what I term a grain separator, for separating the grains of metal from the earthy substances, or crushed gauge, substantially as described, preparatory to, and in combination with the crusher or equivalent therefor, when the separator is employed as a hopper to the crusher, and combined therewith by a feeding tube or equivalent therefor, for conducting the substances to be crushed below the surface of the column of water in the crusher, substantially as and for the purpose specified.

I *claim* also an improved Chilian mill, consisting of a deep outer vessel A, holding a high column of water, in which the double acting vertical wheels B B combined therewith are wholly or nearly submerged for the purpose substantially as specified. And I wish it to be understood that I do not claim a shallow vessel in which single acting horizontal stones are used; neither do I claim the ordinary Chilian mill.

No. 14,847.—Ossian G. Auld and Jasper S. Whiting.—*Improved Riffle for Gold Washing.*—Patented May 13, 1856; antedated February 20, 1856.

The nature of this invention consists in making the openings in the iffle of such a shape that, in gold washing, with a current of water, an

eddy is created, whereby all the gold is brought into contact with the quicksilver, while all tendency to escape is overcome by the action of said eddy and the shape of the flanges.

Claim.—The use of circular cavities or receptacles, constructed in the manner herein shown, having the neck of one diameter and the lower portion of an enlarged diameter, so as to operate in the manner specified.

No. 14,058.—CHARLES HAMMOND.—*Improvement in Attaching Hammer-Heads to Shafts.*—Patented January 8, 1856.

The socket C is secured to the top of the shaft B. It is provided with two projecting lips *a*; these, together with the socket, are inserted into the eye of the hammer head A, and then a wedge D is driven in, which secures said socket firmly to the head A.

Claim.—The socket C, with its projecting lips *a a*, and the wedge D, arranged and employed in connexion with the head A and shaft B, substantially in the manner and for the purpose set forth.

No. 14,167.—GEORGE M. RAMSAY.—*Improved Hinge.*—Patented January 29, 1856.

A is an anti-friction roller near the centre of wing B, and when applied or in use is provided with a concave groove (in the back of the hanging stile) equal to the convex surface of said roller, and in which it is free to roll up and down, while the wing B communicates with wing C in front of the hanging stile, by and through a small groove leading from the concave groove to the front of said hanging stile, while the wing C is made fast to whatever is desired to be hung and swung.

Claim.—The anti-friction rollers A in combination with a joint hinge, substantially in the manner and for the purposes herein set forth.

No. 14, 349.—ISAAC DAVIS.—*Improved Hinge for Shutters.*—Patented March 4, 1856.

By making the screw K conical, the screw can be placed within the plane of the outside surface of the window frame behind the radical line *e*, so that the screw is entirely enclosed. The wheel G has flanges J by which it is attached to the window shutter H. By turning the knob M, the screw K, gearing into the teeth of G, will turn the latter, and with it the shutter H.

Claim.—The use of the conical screws K, operating in combination with the wheel G, held in position by and turning on the pin E; the whole being constructed so as to operate in the manner described.

No. 16,272.—JOHN T. GARLICK.—*Improved Spring-Hinge.*—Patented December 23, 1856.

The leaf A is secured to the casing of the safe, and the door of the safe is rivetted to the spring C; this arrangement keeps the door a suffi-

ient distance from the casing for the introduction of a packing, which enders the safe perfectly tight and prevents the admission of water or lampness.

The inventor says: I do not claim the use of a hinge with springs ttached thereto, so that the article to which it is attached may be djusted to the different distances from it.

I *claim* a hinge, or series of hinges, attached to a double-leafed spring, n the manner described and for the purposes set forth.

No. 15,241.—CYRUS KENNEY & WILLIAM GURLEY.—*Improved Machine for grinding Butt-Hinges*.—Patented July 1, 1856.

The cam *a*, with its handle *h*, is hung to the elastic arm a^1, so as to turn in a plane perpendicular to the bed B and stop G. When the operative places a folded butt on the bed with its knuckles to the stop G, as shown in fig. 4, and then brings down the punch-block upon the butt, the punch-block will slide along the flap of the butt until it strikes the knuckles, and will force the butt against the stop G; the punch-block will there remain, holding the butt for grinding, by the pressure of the elastic support a^1 alone.

The griper is fastened to the rock-shaft C, not only to avoid the friction which attends sliding the griper on ways, but to enable the operative to place conveniently the butt in the griper, and to slide the butt across the face of the stone D, so as to grind its edge square.

The inventors say: We do not claim any part or arrangement of the herein-described apparatus which has been before used or known.

But we *claim* the improvement of hanging the punch-block or cam *a* on or to the elastic support a^1, arranged in combination with the bed B and stop G, substantially as herein described for the purpose specified.

Also, mounting the griper upon the rock-shaft C, arranged in combination with the grind-stone, as herein set forth for the purposes specified.

No. 16,273.—C. B. GALENTINE, SAMUEL GALENTINE, & ANDREW J. RUSSELL.—*Improved Hoof Expander*.—Patented December 23, 1856.

By placing one of the serrated edges C on either side of the frog nd by turning the thumb-screw A, the instrument attaches itself to he hoof, and any degree of expansion is readily accomplished and naintained during the application of the shoe.

Claim.—The application of the instrument described, or any other ubstantially the same, worked by a thumb-screw, or other form of ever, so small as not to interfere with the operation of nailing the shoe o the hoof of the animal.

No. 14,193.—ELISHA HARRIS.—*Improvement in Machines for Bending Ship Hooks.*—Patented February 5, 1856.

The hook blank properly heated is brought between the rollers A A^1, and the clamp C screwed down upon the eye of the hook as represented in fig. 1. Power is then applied to turn the rollers about half a revolution, by which means the hook is bent round the lower roller A as shown in fig. 2. The rollers are then turned back to their first position, the clamp unscrewed, and the hook removed.

Claim.—The roller or former A of the intended form of the interior of the hook, provided with a pocket or clamp for securing the eye of the blank during the bending operation, substantially as herein described.

No. 14,852.—NELSON B. CARPENTER.—*Improved Horse-Shoe.*—Patented May 13, 1856.

The nature of this invention consists in the construction of a horse shoe which may be fastened to the foot of a horse without the use of nails or other device penetrating the hoof.

The inventor says: I do not claim any particular construction or form of a horse shoe with a rim or flange, although the latter is in fact a part inseparably connected with my invention; yet I am aware that flanges or rims detached in part have been used heretofore in this and other countries. Neither do I claim a "heel bar" or "round shoe," separately considered, as that too has been used heretofore.

But I *claim* a horse-shoe having a branch bar attached to each heel bar of the shoe extending inwardly and at the same time lapping and fitting one to the other, with corresponding apertures through each, for the insertion of a pin or screw, for the purpose and in the manner set forth.

No. 14,915.—JOHN HENDERSON.—*Improved Horse-Shoe.*—Patented May 20, 1856.

The object of this invention is to provide a bearing surface of sufficient extent and the proper form to give a firm and adequate support to the weight of the animal, and to relieve the sensitive parts of the foot from the irritation caused by the friction and contraction of the shoe upon the heel.

Claim.—Arranging a special bearing surface adapted to the rim of the hoof, and terminating in lines converging from the outer to the inner edge of the shoe upon the bars C C, with a gradual deflection of the heel, beginning at the converging lines A^1 A^1, and extending to the near parts of the shoe at B B.

No. 15,306.—SEWALL SHORT.—*Improved Horse-Shoe.*—Patented July 8, 1856.

The horse-shoe is of the ordinary shape, with the addition of an upward projection *a a*, on each end at the heel, as shown at figure 1;

is supplied all around with grooves *b*, into which the tongues *e* of the ıp figure 2 can be inserted, and the cap can be fastened to the shoe r inserting bolts into the holes *a*, and the holes of the cap figure 2. 'hen both are fastened together, they are as represented in figure 3.

Claim.—The combination of the cap and shoe, made in two separate eces, the cap and shoe being constructed separately, substantially the manner, and for the purposes herein set forth, of easy application nd ready removal.

Also, the rib and groove attaching the cap and shoe, as above.

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lo. 16,082.—HENRY BESSEMER.—*Improvement in the Manufacture of Iron and Steel.*—Patented November 11, 1856. England, February 12, 1856.

The cylinder *a*, which is lined with fire brick, is first heated by ntroducing burning charcoal or wood, and the molten crude iron is un into it through the aperture *p*, at the same time that a blast of air s forced into said cylinder by means of the tuyere-pipes *y*. As soon as he molten metal covers the mouth of said pipes, the carbon of the crude ron is burnt by means of the oxygen of the atmospheric air, producing n intense heat, which causes violent ebullition, driving out the carbon nd all foreign matter through the aperture *p*. When the crude iron as been deprived of carbon to the desired degree, so as to be converted nto cast-steel or malleable iron, the cylinder containing the iron is turned nto the position of figure 2, in which the reduced metal can be run off t the same time that the tuyere-pipes are above the molten mass, so hat no iron can flow into them, as would be the case were the blast nterrupted in the position of figure 1.

The inventor says: I do not confine myself to the precise details pecified, provided that the peculiar character of my invention be etained.

I do not claim injecting streams of air or steam into molten iron for he purpose of refining iron, that being a process known and used efore.

I *claim* the conversion of molten crude iron or of remelted pig or inery iron into steel or into malleable iron, without the use of fuel for eheating or continuing to heat the crude molten metal, such conver- ion being effected by forcing into and among the particles of a mass f molten iron currents of air or gaseous matter, containing or capable f evolving sufficient oxygen to keep up the combustion of the carbon ntained in the iron till the conversion is accomplished.

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o. 15,750.—JOHN B. WICKERSHAM.—*Improved Construction of Iron-Fence Posts and Ties.*—Patented September 16, 1856.

The nature of this invention will be understood by reference to the aim and engraving.

Claim.—The double ripped post or tie, cornered and mortised upon pposite and corresponding sides, as specified, in combination with the clined corner key E for holding and crimping the rail, as described.

2d. I *claim* so constructing the fence tie and key above m that it may be attached to a wood in order to take up the lax t of wire and flat-hoop iron, and thus act as a compensator for t pansion of the metal when used for fences, as set forth.

No. 16,186.—Silas S. Putnam.—*Improvement in Machines for f Iron.*—Patented December 9, 1856.

The bar of iron to be forged is supported by rest M; motion imparted to the machine, the cam D is rotated and brought t upon the opposite pair of the hammers E F, G H, which are alter released and brought together with a powerful blow by the spri the cam being so adapted that one pair of the hammers is out way before the others fall.

Claim.—The arrangement of the four hammers operating in in the manner set forth, and actuated by a single central cam, scribed.

No. 16,083.—Henry Bessemer.—*Improvement in Smelting Iron* Patented November 18, 1856.—England, August 25, 1856.

The furnace as represented in the engraving being properly h a charge of molten iron is introduced, and blasts of air under a pressure are caused to enter the molten mass through the tuyere *b:* the oxygen of the air produces the effect on the crude iron scribed in Henry Bessemer's patent, No. 16,082, and the intens produced by the combustion of the carbon of said crude iron the carbonaceous iron ores which are charged into the furnace the crude iron to be reduced to crude iron and to sink to the l of the furnace, where they in their turn cause the ores above t be reduced in the manner described; the tuyere pipes *a* serve troduce a blast of air into the heated mass of carbonaceous iro

Claim.—I am aware that it has been heretofore proposed to for blast furnaces carbonaceous gasses or solid carbonaceous subs with the blast, for the purpose of adding to the effect of the fuel wise supplied to such furnaces, or for the purpose of assisting in duction of ores containing oxyd of iron, and I mention this fact it that it may be fully understood that I lay no claim thereto. Nc confine myself to any particular form of furnace or apparatus for ing into practical operation my said invention, provided that t culiar features thereof be retained.

I *claim* the described new process of obtaining iron from a ch ore in a furnace, viz: by means of molten iron underlying such c and by air, oxygen, steam, or a gas containing oxygen forced i molten iron to such an extent as to effect the reduction of the ch the abstraction of the metal therefrom without the employment c nary carbonaceous fuel.

No. 15,159.—WILLIAM BERTRAM, assignor to JOHN W. COCHRAN.—*Improvement in Welding Iron Plates.*—Patented June 17, 1856. England, December 21, 1854.

Figure 1 represents a lap of two sheets of iron welded together according to this invention. Fig. 2 represents two portable furnaces with two parts of iron, which are about to be welded together in a position opposite to and between the mouth of the forges to receive a welding heat; *b b* are openings to receive the end of a pipe through which a blast is forced into the vessel *a a* and through the ignited fuel, by which a flame will be forced through each outlet *c c*, against the parts to be welded. The hammers are kept in contact with the plate by springs S S¹ and struck by hand hammers.

Claim.—Welding the separate faces of such bars or plates together by pressure or concussion, while at the same time they are subjected to opposite blasts of heat, in the manner herein set forth.

No. 14,412.—RICHARD SAVARY.—*Improvements in Puddling Iron.*—Patented March 11, 1856.

The metal, when melted, is conveyed from the cupola by the conduit C into one or more of the furnaces. When a sufficient charge has run in, a stopper in the conduit serves to shut off the stream; the conduit is removed, and the puddler proceeds to work the iron in the usual way until it comes to nature, when, instead of dividing it into masses to be balled separately, he rolls it up into a convenient shape and removes it from the furnace to be worked as other puddler's balls.

Claim.—The arrangement of the cupola A and puddling furnaces B B, &c., constructed and operating as herein set forth.

No. 14,114.—ABEL PEVEY.—*Improvement in Remelting Iron Scraps.*—Patented January 15, 1856.

The iron dust is confined in a vessel enclosed on all sides to prevent its being wafted away by the blast, which vessel will melt with or little after the cast-iron dust contained in it, and consequently effectually melt all the dust.

Claim.—The within described cast-iron retaining vessel, with one or more perforations through it, or otherwise formed, the vessel being for receiving and retaining the iron dust, and then be enclosed on all sides, so that both the vessel and the cast-iron dust that it contains will be melted together, essentially in the manner and for the purposes fully set forth.

No. 14,827.—THOMAS H. POWERS.—*Improvement in Furnaces for Smelting Iron.*—Patented May 6, 1856.

The air, being heated in the vault 3, passes through pipe 2 2 2 into the furnace at 4 over the molten metals, mingles with and increases the intensity of its heat. 6 represents a lever for regulating the draft.

Claim.—So arranging the pipe 2 2 2 in connexion with the combustion chamber and stock as described, that the air passing through the pipe shall be heated and disengaged in the manner and for the purpose set forth.

No. 15,247.—O. W. MINARD.—*Improved Brass-Kettle Machine.*—Patented July 1, 1856.

As the bed-carriage moves longitudinally from the mandrel, the pin r of the upper carriage sliding in the groove of the diagonal bar *x*, the clamps *o* o^1 move back from the axis of the forming-roller *e e*, and thus keep the inner surface of the disc of metal firmly in contact with the surface of the forming-roller. The diameter of the forming and working rollers *e* and *k* is not in the proportions of the spur-wheels *i* and *j*, but the forming-roller is relatively greater, in consequence of which the surface of the forming-roller will travel faster than the surface of the working-roller; and as motion is imparted to the metal disc by the bight of the two rollers, it follows that the metal disc must slide on one or the other, and it will slip on the one which is the most polished; hence by making the forming-roller with the smoothest surface, the inside of the kettle will be burnished, &c.

Claim.—The method, substantially as specified, of polishing or burnishing either of the surfaces of the metal during and by the rolling action, by causing one of the rolling surfaces to move faster or slower than the other to produce a slip, as set forth.

Also, in combination with the forming *e e* and working-rollers *k*, giving to the carriage which carries the clamps *o* o^1 with the disc of metal a diagonal movement to keep the inner surface of the metal in contact with the forming-roller during the rolling action as described.

No. 15,961.—EDWARD C. BLAKESLEE, ENOCH PLATT, Jr., and EDMUND JORDAN.—*Improved Machine for making Brass Kettles.*—Patented October 28, 1856.

The blank being placed against the rim B, a revolving motion is imparted to the pulley D, which causes to revolve the die A and rim B. The reducing-rollers *a* roll over the blank and reduce it gradually to the decreasing thickness desired. Then by revolving the wheel H the male die E will force the metal into the female die A, and by turning the screw-nut *e* the reducing-rollers are forced towards the rim B; this operation is continued until the die E is forced to the bottom of the die A, when the kettle is perfectly formed.

Claim.—The combination of the revolving female die A and its disc or rim B B with the male die E, when these are combined with the adjustable reducing rollers *a a*, and the whole is constructed, arranged, and made to produce the result, substantially in the manner and by the means set forth.

No. 14,696.—O. W. MINARD.—*Improvement in making Brass Kettles.*—Patented April 15, 1856.

The working roller *h*, when the work commences, stands opposite the end of the working mandrel a^2, and the holding mandrels *d* and d^1 are brought into such a position as to bring the plate to be wrought between said roller *h* and the end of the working mandrel a^2. The holding rest *k* is made to slide towards and from the roll a^2 upon the base k^1, which is moved along the ways *b* by the screw *m*. This movement prevents pressure and chafing at one point where the end of the roll a^2 bears, and aids also in drawing the bottom into shape. The loose sleeve S holds out that part of the plate to be wrought in front of the roll and prevents its crimping.

The bearings of the holding mandrels $d\,d^1$ rest on a frame *e*, which turns on a point at e^1, by which it is connected with a sliding frame e^2, which moves along upon the ways by means of the screw *f*. The loose disk *j* is forced up against the plate on mandrel *d* for the purpose of bringing the bottom of the kettle to be wrought gradually into shape.

Claim.—The employment of the clamps or holder in combination with the working rollers for drawing or working, or their equivalents, all arranged, adjusted, and operating substantially in the manner described, for the purpose of forming a disk of metal into a kettle as specified without employing a mould or former therefor.

I also claim the combination of the centre-piece d^1 for holding the disk of metal and disk *j*, by which the bottom of the article being manufactured is formed by the combined action of the disk *j* and drawing or working apparatus.

No. 14,887.—FREDERICK J. SEYMOUR.—*Improvement in making Brass Kettles.*—Patented May 13, 1856.

The dies *d* and *e* are first attached to the ring *h* and lifted with the male die *g*; a disk of metal is now placed on the die *c* and the drop *a* forced down which forms the metal into the shape corresponding with . The form *c* is then changed by adding in succession the dies *d* and to it. The size of the kettle will determine how many rings will be needed to form the female die and the consequent number of operations required to bring the blank kettle into the required shape.

Claim.—Forming brass kettles or similar articles from disks of metal by the successive operations herein set forth, commencing at the bottom and smaller part of said kettle and shaping the same at once, and then gradually forming a drawing in the sides by means of dies.

No. 15,772.—O. W. MINARD.—*Improvement in making Brass Kettles.*—Patented September 23, 1856.

To trim a sheet of metal and cut it into rings, the metal should be placed between the clamps, and the axis of the clamp mandrels should be placed at an angle of 90 degrees with the axes of the cutter shafts,

which will bring the plane of the metal to a right-angle with the face of the shears; the hinged piece K should be lifted to the position K^1, and the part of the metal to be trimmed should be inserted beyond the edges of the cutters *b* and b^1, then the piece K should be brought back to bring the cutter b^1 to a cutting position, and the shears started. The article held between the clamps will revolve and be trimmed by being in contact with the cutters while they are in motion.

Claim.—The use of rotary shears or cutters, having a hinged or sliding piece, constructed and operating as described, to carry one of the shafts and one of the cutters from a cutting position, and to quickly and acurately replace it when desired.

No. 15,031.—LINUS YALE, jr.—*Improved Lock.*—Patented June 3, 1856.

The curb C and wing C^1 attached is revolved every time the lock is turned by the key B; and as the wing C^1 strikes the tumbler A at the notch and raises it sufficiently to pass under it, like an even-bitted or straight key, it follows the key, and always removes its impression. The tumblers A are notched near their corners a^1 a^1, in order that the longest bits *b b*, with the exception of the shortest of the key B, shall produce the same impression.—(See dotted lines 1, 2, 3, 4.)

Claim.—1st. The peculiar form of the tumblers A, or an equivalent form, in combination with a changeable key.

2d. The rib or wing C^1.

No. 15,708.—HENRY D. RUSSELL.—*Improved Lock.*—Patented September 9, 1856.

By turning the door-knob upon stem D, either point of the crescent E catches the pin upon the back of bolt C, and forms, with the edge of said crescent, an inclined plane, upon which the pin S slides, to draw the bolt C and its attachment; the main bolt B, made fast to it, being locked by cross-bar F. When the key which passes through the opening G is turned, the cross-bolt F locks between the stationary pins I and J, and prevents the main bolt from being operated by the smaller bolt C.

Claim.—Liberating the knob and its stem from all connexion with the main bolt, in freeing the crescent plate E, by the movement of the smaller bolt C, as specified, produced by the cross-bar F, or its equivalent, operated by the key of the door; the whole constructed and arranged substantially, as set forth.

No. 14,209.—S. J. TRASK.—*Improved Alarm Lock.*—Patented February 5, 1856.

In order to withdraw bolt H, the key F is passed through keyhole *e* and through wheel D, and, as the key is turned, the wheel D will also be turned, and the wheel will operate the levers E E^1, and cause

the bell C to be struck by the lever E^1. When the key is in line with the keyhole *f*, in the partition plate B, the key is shoved through the latter, and the point of the key passes into a hole in spring G, and this spring is shoved outward from the plate, (see position of G, represented by dotted lines in fig. 2,) till the projection *h*, on said spring clears the notch *i* in the bolt, when the bit will enter the bit-notch i^1 in the bolt. The key being again turned, the bit will move back the bolt. The lock may be unlocked from the inner-side without a key, by operating the spring G, by means of the knob I, so as to clear the notch *i*, and moving the bolt by the knob J. The plate L can be so turned, (see positions of L, represented by full and by dotted lines in fig. 1,) by means of a button, as to overlap the spring G, and prevent its being shoved out; thus serving as a check, and giving additional security.

Claim.—The use of the spring G and rod *j*, when used in connexion with the plate L, arranged and operated in the manner set forth.

No. 15,168.—JULIUS CONE.—*Improved Alarm Lock.*—Patented June 24, 1856.

The disc *p* is secured to the knob shaft A and carries a pin *d*, which when the knob shaft is pushed towards the bolt L enters a slot *e* whereby the bolt is actuated. When the bolt is drawn into the lock, the edge of the slot *k* enters a notch *j*, so that the drawer may be opened by pulling upon the knob of the lock; but when the bolt is not forced in, the pin *d* will not be retained in the slot if the knob is pulled.

The notch *l* cut in the disc *p* is so situated that when it is brought to the fork *b n* of the ward spring M, and the disc *p* pushed inward, the pin *d* will enter the slot *e* in the bolt. When the disc is in the fork *b* and the knob shaft is drawn out or pushed but slightly, the alarm will be sounded.

The projection *m* on the scape wheel N strikes the fork *n*, and thus acts as a stop to prevent the alarm from unwinding.

The object of the notches on the periphery of disc *p*, and the hooked projection O on the bolt L, together with the spring P, is to enable a person who sets the lock to move the notch *l* a certain distance from the fork *b*, so that he may, when he wishes to open the drawer, move it back again the same number of notches, and thus unlock without striking the alarm.

Claim.—Disconnecting the knob shaft A from the latch bolt L, thereby dispensing with a key, key hole, separate key bolt, and all devices for operating a key bolt.

I also *claim* placing the alarm spring E and scape wheel N upon the knob shaft itself when combined with the arrangement for connecting said knob shaft with and disconnecting it from the alarm, so that said alarm may not interfere with the ordinary use of the lock simply for a latch.

I also *claim* the disc *p*, constructed and operating in connexion with the bolt, alarm, and "ward spring" M, substantially as described and for accomplishing the various purposes specified

I also *claim* the ward spring M, constructed and arranged substantially in the manner and for the purposes herein set forth.

I also *claim* the notch *j* in the knob shaft, in combination with the slot *k* in the bolt, when arranged and operating substantially in the manner and for the purpose herein described.

No. 14,958.—EZEKIEL M. HENDRICKSON.—*Improved Lock and Key.*—Patented May 27, 1856.

The handle D, to which the arms F are hinged, and the stem E slide within the hollow case C. The projection G is intended to turn a collar H, and thus operate upon the bolt P, by means of arm I and link J, when all the other parts are in their right position.

The levers N, suspended in the interior of cylinder L, are so situated in relation to projections O in the fixed back of the lock that, unless moved by the pressure of the stem E, the revolution of L will be prevented. The bolts *k k* have recesses in their sides into, which when locked smaller bolts are pressed by springs.

The operation of locking consists simply in pressing upon the knob R, which detaches lever P, and allows the bolts *k* to be pressed out by the springs S S.

The inventor says: I do not claim the employment of one or more jointed arms on a key, such being the construction of what is known as the night latch; but I *claim*, 1st. The construction and use of the key above described, which spontaneously projects slender arms F through a revolving cylinder L, for the purpose of simultaneously detaching catches from the bolts. And 2d. The combination of the key, or the mechanical equivalent thereof, with the revolving cylinder L, the check levers N, the locking levers P, and the springs S S, substantially as described and for the purposes set forth.

No. 14,178.—EDWARD KERSHAW, assignor to Himselt and HENRY M. HOOPER & Co.—*Improved Cell Lock.*—Patented January 29, 1856.

This arrangement of bolts, notches, and studs allows of all the doors being locked or unlocked at once, and also of any one of them being unlocked while the remainder are locked.

The inventor says: I do not claim the invention of a single locking bar or bolt, so made and applied to the wall above the door-openings of a series of prison cells, as to be capable by its longitudinal movement of either locking or unlocking simultaneously all the doors of said cells; but I *claim* the combination of the bars E and H having notches at certain proportioned distances, as described, operating in connexion with the studs D on the cell door, in the manner set forth.

No. 15,136.—CHRISTIAN KNAUER, assignor to WARWICK, ATTERBURY, & Co.—*Improved Door Lock.*—Patented June 17, 1856.

The lock bolt and its tumbler F are operated from the key hole K, which is made so that the key may be inserted either way. The key,

when turned within either of the curves r^1 r^2 r^3 or s s^1 s^2 of the tumbler, lifts the tumbler and then moves it sideways in such a manner that the throw of the tumbler is equal in whichever way the key may be inserted. The lock bolt, being connected by means of the pin 9 with the tumbler, is moved the same distance. The lock bolt, when in locked or unlocked position, is securely kept in its place by the tongue *u* of the tumbler, butting against the projection *v*, on the guiding-block *m*. When, however, the lever tumbler is lifted up, the tongue *u* comes above the projection *v*, and the groove *t* opposite it; the tumbler is then allowed to move sideways. When the lever tumbler is moved downwards, the groove t^1 gets opposite the projection *v*, whereby the tumbler is set free to move sideways. As soon as the tumbler arrives at the end of its stroke, the tumbler is forced by the action of the spring G into the position again, that the tongue *t* is opposite the projection *v*, whereby the bolt is kept securely in its place.

Claim.—Actuating the bolt E of a right and left hand lock by means of a tumbler F, which has a vertical motion, for the purpose of freeing and securing the bolt, and also a vibrating motion for throwing the bolt in or out the tumbler being arranged in relation to the key in such a manner that the bolt will be thrown out the same distance in whichever way the key may be inserted.

No. 15,783.—THOMAS SLAIGHT.—*Improvement in Lock and Freight Cars.*—Patented September 23, 1856.

The nature of this inventiou will be understood by reference to the :laim and engraving. The bolt H can be released from the jaws B)y inserting the key in the lock, and turning the tumblers E and plate), thereby distending the jaws and allowing the bolt to be withdrawn.

Claim.—The hasp G, fitted over the socket F of the lock, and se-ured thereon by the plug or bolt H, which passes through the hasp nd socket into the lock, substantially as described.

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lo. 14,675.—M. NEWMAN, 2d.—*Improved Lock Hasp.*—Patented April 15, 1856.

When the bolt *e* is projected by turning the key, it enters between the rojections *f f*, and thus the ear of the bar C is securely kept in the eye f the staple B, and the removal of the hasp A cannot be effected without the previous removal of the ear holding it in place.

Claim.—The use of the swing-bar C, constructed as described, in onnexion with the locking bolt *e* and the hasp A, with projections $f f^1 f$ hereon, for the purpose of retaining the hasp when on the staple, substantially in the manner set forth.

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lo. 14,030.—I. J. OLDIS.—*Improved Padlock.*—Patented January 1, 1856.

The front plate of the casing A has two key holes made through it—ne of which is opposite the lever D, and the other opposite the lever E

When the lock is in a locked state, the lips d d^1 on the spring C C^1 are in the notches e e^1 in the end of the bow or shackle B. In order to unlock the lock, the plate F^1 is turned or moved, and the true key hole is exposed, which is in line with the lever D; the plate F^1 being moved till its aperture j is in line with the lever and key hole. The key is then inserted into the recess e in the lever D, and the key is turned to the right, and the lip d^1 of the spring C^1 will be thrown from the notch e^1 in the end of the bow B, and by pressing the pivot i inwards, the lip o on the spring H will catch over the upper end of the spring C^1 and hold the lip d^1 free from the notch e^1.

Claim.—The use of spring catch H and lever D, arranged and operating in connexion with the lips d d and springs C C, as set forth.

No. 15,270.—SOLOMON ANDREWS.—*Improved Padlocks.*—Patented July 8, 1856.

The bolt or hooks A are drawn back from the shackle by means of the inclined or bent end of the opening spring e, represented in a detached view in fig. 2, operating obliquely upon a small wire passing through the hooks A, which is brought into action by any one of the bits of the key through the intervention of the tumbler springs d; either one of which being lifted will lift the opening spring e, because it rests its broad surface upon them, and is kept in contact at its heel by the pressure of one end of the shackle spring c upon it. The using of all the bits of a key for tumbler action, whilst either one acts as a bolt bit, adds much to the security of a lock where only a small key-bit surface can be had.

Claim.—Making a spring to answer the double purpose of a spring and ratchet tumbler, which I denominate a spring tumbler.

The opening spring, being a spring brought into action by the key, for the purpose of drawing back the hooks or unlocking the locks.

The combination of the spring tumblers with the hooks, in the manner herein set forth, holding back the hooks when unlocked, so as to constitute a perfectly racked tumbler lock, a self-locking one.

No. 16,224.—SOLOMON ANDREWS.—*Improved Case for Padlock.*—Patented December 16, 1856.

A plate is punched out, as represented in fig. 1; then raised at its edges, and the keyhole b punched in it and bent at right angles, so as to form the case of a padlock, as shown in fig. 2.

Claim.—The making of the body or case of a padlock of one piece of wrought metal.

No. 14,616.—WILLIAM MAURER.—*Improvement in Locks.*—Patented April 8, 1856.

Fig. 1 represents the lock in a locked state. To unlock the lock, the catch E must pass out of the upright portion of the slot f in the bolt D, and into or through the upright portions of the slots e e in the

umblers B B, and, of course, the upright portions of the tumbler slots nust be brought in line with each other. To effect this, the tumblers 3 are moved by turning the bit C (by means of a crank A^1) till the slots *c* are in line, so that a key B^1 may be inserted in them, said key having recesses or slots a^1 in its sides, as shown in Fig. 3. When the key is inserted, the springs *d* are allowed to throw the tumblers in such positions that the upright portions of the slots *e* will be in line, as the slots a^1 in the key are so made as to cause the slots *e* in the several tumblers to assume the proper position. The upright portions of the slots *e* being in line, the catch E is thrown free from the upright portion of the slot *f* in the bolt and into the slots *e* in the tumblers, by the spring *g*, as shown in fig. 2, and the lock is unlocked.

Claim.—The tumblers B having slots *c e* made in them, in combination with the slotted bolt D, bolt-catch E, arm or lever F, and bit C; the above parts being arranged as shown and described for the purpose specified.

No. 14,896.—Joseph M. Lippincott.—*Improvement in Locks.*—Patented May 13, 1856.

The lock is opened from the outside by turning the wrench *d*. The cogged-bit *m* enters the teeth on the edge of the locking bolt; and the tumblers *t* being adjusted in the tumbler-chamber *f* by the key, the locking-bolt *i* is drawn back, the fence *h* entering the horizontal groove. The pin *r* in the locking-bolt *i* carries with it the latch-bolt *p*, the tongue of which projects beyond the front of the lock. So soon, however, as the wrench *d* is released, the spring s^1 acting on the end of the latch-bolt *p* springs it forward again, and the pin *y* entering the slot *z* carries forward also the locking-bolt *i*, withdrawing the fence *h* from the groove *g* in the tumbler-chamber *f*, when the spring *s*, acting on bolt *l*, raises all the tumblers, deranging the grooves and preventing the retrocession of the locking-bolt *i*, without the use of the key from the outside.

Fig. 1 represents a view of the door-lock, the top and sides being removed to exhibit the interior.

Fig. 2 is a similar view, excepting that the bolts, wrenches, and latch-spring are removed.

Fig. 3 is a view of the fence-bolt or locking-bolt.

Claim.—The combination of the spring-bolt *l*, tumblers *t t*, and fence *h*, constructed and arranged in the manner and for the purposes described, together with the combination therewith of the locking-bolt and latch-bolt *p*, so that the lock may be readily opened from the inside without a key, and yet requiring a key to open it from the outside.

No. 14,848.—William H. Akins.—*Improvement in Locks.*—Patented May 13, 1856.

The shaft F is caused to revolve until the clutch *u* strikes against the clutch-pin *o* of the first revolving disk C, then continuing on until the

other end of the clutch of the latter comes in contact with the head of the clutch-pin of the second disk; and so on, until the party is in a condition to arrange the slot of the last disk in a line with the slots of the flanges *e* and that of the inner end *n* of the tongue E, for which purpose the shaft is turned until the proper number on the plate G is brought opposite the point of the arrow *g*. The shaft is then revolved backwards to bring the clutches of the disk *f* and first disk together on the other side of the clutch of the second disk, and until the proper number is brought opposite the point of the arrow *g*, when the slot of the second disk will also be set; and so on, until all the slots will be in a line with the tang of the lock-bolt E.

Claim.—Arranging a series of revolving slotted disks C upon a fixed neck or stud D, so that each in turn shall be made the means of adjusting the slot of the other when operated upon by another disk *f*, or its equivalent, secured to a revolving shaft F and index G.

2d. Altering the respective numbers of two or all the disks C, by the simple change of an adjustable clutch from one hole to another, substantially as and for the purposes described.

3d. The method of discovering the proper numbers to open the lock, substantially as specified.

No. 15,124.—MICHAEL ERB and F. C. GOFFIN.—*Improvement in Locks.*—Patented June 17, 1856.

The key F is inserted in the opening *d*, and the knob H is turned so that the shoulders *c* of the tumblers will pass into the slots *e*, in the key. The slots *a*, in the tumblers, being thus brought into line, the bar G may be shoved back. When the cross piece *f* is within the tumblers, the knob H is turned backwards, in order to allow the key F to be withdrawn; and by again turning the knob, the slots *a* will again be brought into line, and the bar G may be shoved back and forth.

The inventors say: We do not claim the sector tumblers with slots cut in them at varying points, for they have been previously used; but we *claim* placing said tumblers upon the shaft C, as shown, viz: the end tumblers D^1 being attached permanently to the shaft, and the tumblers D placed loosely upon it, with washers *b* between them, whereby a positive action or movement is given to the tumblers, the use of springs dispensed with, and the lock rendered durable, simple, and economical to manufacture.

No. 15,239.—HENRY ISHAM.—*Improvement in Locks*—Patented July 1, 1856.

In the engravings fig. 1 represents a face view of the lock, with the cap plate removed, and with the bolt thrown out.

Fig. 2 and 3, cross sections taken at the lines B *b* and A *a* of fig. 1, and looking in the direction of the arrows.

Fig. 4, a section parallel with the face, and taken at the line C *c* of fig. 2, with the bolt thrown in

Fig. 5, a view of the key.

The inventor says: I do not wish to be understood as making claim broadly to the engagement of rotating tumblers with the key slides by the throw of the bolt. But I *claim* moving a series of rotating cogged tumblers *g g g g*, at right angles to the line of motion of the bolt *b*, by means of a slot *k* in the bolt, or any equivalent thereof, operating on the shaft or spindle *i* of the tumblers, whereby the cogs *h h h* on said tumblers can be made to engage the cogged racks *t* on the key slides *n*, previously set by the key before the stop-pin *f* on the bolt leaves the slot J in the tumbler, and will so remain engaged, while the bolt continues its movement to carry said stop-pin to some distance beyond the periphery of the tumblers, so that in any attempt to pick the lock the said stop-pin shall not rest against the periphery of the tumblers to admit of feeling, as it is termed, to bring the tumblers in succession to the required position to allow the lock to be picked, as described.

I also *claim*, in combination with the method of operating the tumblers by the throw of the bolt, and giving to the bolt the capacity to move after the tumblers have been engaged with the key slides to carry the stop-pin some distance beyond the periphery of the tumblers, substantially as described, the employment of a stop or hold-fast a^1, operated by the bolt to lock or hold fast the key slides or tumblers before the stop-pin on the bolt reaches the periphery of the tumblers, substantially as described, whereby the slides and tumblers, if not previously arranged by the proper key, will become locked in their disarranged condition before the stop-pin on the bolt can reach the periphery of the tumblers to feel when the tumblers are brought to the required position by a pick.

I also *claim* forming the bit of the key of a series of sector pinions *v w*, &c., which may be shifted to change the combination or permutation, substantially as described, in combination with a series of cogged rack slides *n* for operating the tumblers, substantially as and for the purpose specified.

And, finally, I *claim* the notched collar d^1 on the key stem, in combination with the lipped spring e^1 at the entrance of the key hole, whereby the key cannot be taken out of the key hole without turning it entirely around to give to the key slides their entire range of motion every time the lock is opened and shut, and thus avoid the possibility of determining the required position of the key slides by the wear of the moving parts, which would be the case if only moved each time to the distance required for unlocking, particularly if the same combination should continue to be used for a considerable length of time.

No. 15,489.—Joseph M. Lippincott.—*Improvement in Locks.*—Patented August 5, 1856.

When the key *b* is inserted in the key hole, which is immediately over the perpendicular grooves *o*, in the wards *n*, the projections on the bit of the key rest on the edge of the tumblers *t*. The key is then forced down, the blade passing into the perpendicular groove *o* in the

wards, and depressing each tumbler to the depth of the projection on the bit of the key. As these projections are of different length, each tumbler is depressed to a different depth in the tumbler chamber; and when the key is pressed down as far as it will go, each horizontal groove g^2 comes exactly to the level of the grooves g and g^1. The fence h is now entered through the passage formed by the conjunction of the grooves $g\ g^1\ g^2$, and the bolt i may be drawn back by turning the pinion m by means of wrench d. So soon, however, as the bolt i is shot back, and the fence h has reached the end of the groove g, it has fairly entered the aperture n in the tumblers, which, being deeper than the groove g^1, permits the tumblers to rise if the pressure of the key is removed, and they are forcibly thrown up by the reaction of the spring bolt l, which was forced back by the pressure of the tumblers when the key was inserted. The tumblers thus all rise to the level of the wards, and the grooves g^1 in the tumblers being no longer in range with the groove g in the wards, the fence h is fastened in its place, and the bolt i cannot be thrown forward without again using the key to adjust the tumblers, as before.

Claim.—I claim the use of a stationary tumbler chamber with movable wards and tumblers, in combination with the fence H, constructed and arranged substantially as set forth.

I also claim the use of an aperture n in the tumblers t, into which the grooves g^2, for the passage of the fence, open, but distinct therefrom, for the purpose of allowing the tumblers to resume a position in which the grooves are out of range, while the fence is yet engaged in the tumblers, substantially in the manner and for the purpose set forth.

No. 15,589.—HJALMAR WYNBLAD.—*Improvement in Locks.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

The inventor says: I am aware that eccentric discs and ward plates have been before known and used, and I do not claim them; but I *claim* the arrangement of a series of eccentric discs F, separated by stationary ward-plates E, with each of said discs having an orifice J at the centre of its motion fitted to the shape of the bits of the key K, and moving upon and guided by a segmental standard G, and moved at the same time and to the same distance within a frame D, attached to and working a bolt C of a lock, as herein set forth.

No. 15,800.—G. W. COPPERNOLL.—*Improvement in Locks.*—Patented September 30, 1856.

When the bolt is shot the secondary key is drawn entirely within the main key K, which is inserted to the distance represented in fig. 4, this causing it to rest upon plate q^1 which forms a part of tumbler d. The key is then turned to the right, causing the movement of the tumblers and the consequent rotation of the shafts $e\ e^1$ and $f\ f^1$. These shafts

remove the guards g g^1 and h h^1 from both sides of the circular opening r. As tumbler d moves, the plate q^1 slides from under the main key and unmasks the sliding guards o o^1; the secondary key is then allowed to descend and enter the opening between the slides o o^1; this key is then turned, causing the slides to part and admit the circular portion of the key to pass; the secondary key then moves onward through the circular openings q and r. and reaches the eccentric I, which it engages and operates. To shoot the bolt the guards are withdrawn and the eccentric J moved in the opposite direction.

Claim.—1st. The swinging guards in front of the bolt chamber, actuated by the fixed portion of the key, in combination with the sliding guards, actuated by the secondary key, arranged and operating as and for the purposes specified.

2d. The eccentrics, I and J, arranged relative to each other and the bolt as set forth, and actuated by the secondary key after the removal of the guards, substantially as and for the purposes specified.

3d. The combination of the swinging guards, tumblers, and spring catches, operating substantially as specified.

No. 15,962.—William H. Butler.—*Improvement in Locks.*—Patented October 28, 1856.

The case A is fitted on the pin H, and when the circular portion of the case is upward the bolt B will catch into the recess l and the door is locked, one side of the case projecting over the edge of the door which opens outward. The bolt B is withdrawn from the recess l by forcing the key E downwards upon the tumbler c and plate i, and the case A is drawn outward till the bolt B catches into the recess k. The case A may then be rotated on the pin H and the door opened.

Claim.—I do not confine myself to any precise arrangement of the bolt b, or tumblers, or mechanism connected therewith, for the parts shown may be modified in various ways.

I claim placing the case A on an arbor or pin H, which is secured in the jamb or casing of the door, the parts being arranged as shown, or in an equivalent way, so that said case may be secured or locked on the arbor or pin, or allowed to be detached therefrom without the aid of a key, whereby the device may be used as a lock or as a button, as described.

No. 14,618.—Andrew Patterson.—*Improvement in Door Locks.*—Patented April 8, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The use and employment of a vibrating bolt b, which shall act as a brace between the seat in or the shaft on which it vibrates, and the jamb-piece or keeper y y into which it falls, without any other leverage on any other point; and this I claim without reference to the manner in which, or the machinery by which, the said brace bolt is operated.

No. 14,714.—JOHN B. ERB.—*Improvement in Door Locks.*—Patented April 22, 1856.

When the knob H is pressed downwards in the oval slot K, it operates on the slide G, whereby the bolt J is drawn backward without danger of putting the lock out of order.

The night key is made tubular, so that when it is put through the aperture L, the handle of the key is pressed inwards and forces out the wing N, (which flies back to its place in the tube when the key is being withdrawn,) which fits in the ward M of the aperture L, and draws back the bolt J.

Claim.—The devices of the knob H, oval slot K, and semi-circular slide G, as they operate upon the bolt J, all in combination, substantially as herein described.

No. 15,456.—THOMAS B. ATTERBURY and WILLIAM WARWICK, assignors to WARWICK, ATTERBURY, & Co.—*Improved Face-Plate for Locks.*—Patented July 29, 1856.

The nature of this invention consists in using for a lock A a separate face-plate B, which is shaped in such a manner in relation to the case of the lock that it can be placed on either of the two sides of said case, whereby the lock may be used on doors which open to the right or left hand side, the face-plate being always fastened outside.

Claim.—The separate or distinct guard or face-plate, of such a form in relation to case or skeleton frame of a lock or other fastening, that it may be put on either of the two sides of the said case or frame, whereby either of the sides can be made the face of the said lock or fastening, substantially as described.

No. 14,059.—JAMES HARRISON, JR.—*Improvement in Padlocks.*—Patented January 8, 1856.

This lock is unlocked in the following manner: The tube *s* of the key is inserted in the hole *w* and pressed upward, so that the end of the tube will press upwards the rods *o o* till the recesses *r r* are opposite the apertures *n n* in the bolt C. The rod *t* is then pressed upward, and the end of the bit *u* will enter the aperture *m* and throw the bolt C back free from the leg *b*, which may then be withdrawn from the case A, and the shackle turned. The stop *h* is forced upward by the spring *i* opposite the end of the hole *d* to keep the bolt C within its hole. The shackle is locked by simply forcing the shackle down within the case A.

Claim.—The combination of the shackle B, sliding bolts C, and rods *o o*, when arranged as herein shown, and fitted with a solid body or case A, constructed of suitable metal substantially as described, whereby a strong, durable, and burglar proof lock is obtained.

No. 16,089.—WILLIAM A. IVES.—*Improved Spring Latch and Lock.*—Patented November 18, 1856.

The cylindrical case A of this lock is provided with key holes in such a manner that by entering the key through the key hole C the bolt may be locked or withdrawn from the inside only, while by passing a key through the key hole E the bolt may be locked or withdrawn from the outside. The knobs H serve to withdraw the bolt when not locked, as in the usual manner.

Claim.—The securing the bolt on the inside, when the same key serves to turn back the bolt, and also to hold it back when desired, and when the said key or any additional key used is so constructed and arranged that it will swing or turn entirely within the tube or cylinder, and be made to operate substantially as described.

No. 15,113.—JOSHUA K. INGALLS, assignor to MATTHIAS H. HOWELL.—*Improvement in Metal Beams.*—Patented June 10, 1856.

The inventor says: I am aware that a wrought-iron beam has been made with wrought-iron corrugated web, said "corrugations resisting compression in the direction of their length." I do not, therefore, claim that; but I *claim*, 1st. The corrugated web B when cast with or upon the top flanch A, and arranged with the bottom flanch C or tie in such a manner as to afford flexibility to the cast portion of the beam, to accommodate its action to the tension of the wrought portion.

2d. The tapering form of the corrugations in their height, which gives a right line when the web attaches to the top flanch, with which it acts in resisting compression, and which increases the breadth of said corrugations, and consequently the flexibility of the web where it touches the bottom flanch or tie, with which it acts in resisting extension.

No. 15,286.—CHARLES DICKINSON and WILLIAM BELLAMY.—*Improvement in securing Pearl Ornaments in Handles of Cast Metal.*—Patented July 8, 1856.

The pearls C are circular plates or disks, having holes through their centres, in which the thimbles *b* are fitted; these thimbles are constructed of tin, or sheet-iron coated with tin; the thimbles are sufficiently long to project a short distance each side of the pearl disks. The pearl disks with the thimbles are inserted in the mould; the melted metal is then poured into the mould, which, when full, is immediately inverted; and as the metal quickly cools on the outer side, the inner part will run out, leaving a sheet or hollow handle D, and the metal will close around the thimbles, as shown, (figure 2,) firmly securing the pearls in the handle, while the edges of the pearls project out all round beyond the sides of the handle.

Claim.—Inserting or securing the pearl disks or plates C in the handle

D, by placing the pearl disks in grooves *a*, formed in the mould; the pearl disks having thimbles *b* fitted within them so that the metal will close around the thimbles.

No. 16,118.—WILLIAM W. HUBBARD.—*Improvement in Lathes for Planing Metal.*—Patented November 25, 1856.

In this machine the tool slide B moves on rails C, which project from the sides of the frame A; and said frame is provided with covers E, which serve to protect the slides from the chips and dust which are produced during the operation of the lathe.

Claim.—Arranging the tool-carriage slides or supports on the vertical sides of the frame or bed, in combination with arranging above such slides, and so as to project from the sides of the frame and over the slides, substantially as explained, coverers or guards, whereby the slides are protected from dust, chips, or other matters, as specified.

No. 16,250.—JOHN S. SANSON and WILLIAM P. FARRAND.—*Improved Machine for making Metallic Slats for Blinds.*—Patented December 16, 1856.

The sheet iron is run upon the bed B until arrested by stops *f*, when the descent of beam B^1 gives the form to the slat at the same time that the shears *m n* separate it from the sheet. The stops *f* are each lifted by a spring *e* when the beam B^1 is raised; as the beam falls these stops are driven into the bed, and are held in that position by the points of plate *l* pressing against them by the force of springs *g*; as the beam reaches its greatest elevation, the plate *l* is drawn longitudinally by the lever *d* releasing the stops, and permitting their springs to lift them.

Claim.—The combination of bed beam and shear with the spring stops, constructed, arranged, and operating substantially as and for the purposes set forth.

No. 16,166.—JAMES SMITH, Jr.—*Improvement in Casting Metallic Tubes.*—Patented December 2, 1856.

The metallic core, composed of the segments *c e d*, can be withdrawn from the tubular ingot by removing the plugs *h* and rings *g* from the ends of the core, and by pressing the part *e* towards the axis of the core, so as to detach it from the others, which, by this process, will be loosened from the ingot.

Claim.—The method of making the metallic mould core, viz: of removable separate sections or staves *c d*, and a narrow trapezoidal or wedge-shaped spring or stave *e*, the whole being arranged and held together by rings *g g* and plugs, or their mechanical equivalents, and made to operate in the manner substantially as specified.

No. 15,899.—James Perkins and William H. Burnet.—*Improved Machine for bending Metal-Pipe.*—Patented October 14, 1856.

The pipe to be bent when taken from the furnace is inserted between the stationary roller *b* and the movable former *d;* the end of the pipe being fastened to the former *d*, the same is rotated and the pipe coiled around it in the spiral form of the groove in which it is laid. This spiral causes the carriage *e* to advance as the pipe is wound on.

Claim.—The mandrel substantially as described with the traversing roller *h*, or its equivalent, for bending coils of metal pipe, and in combination therewith the furnace, in the manner and for the purposes set forth.

No. 15,413.—E. C. Cleveland.—*Improvement in Metal-Planes.*—Patented July 29, 1856.

B represents the cross-bar, which contains the screw C that passes through the nut of the stock D, to which the tool is attached. On one end of the screw C there is placed loosely a pinion E having a pawl *a* on its inner side, which pawl catches into a pinion *b* on screw C. Pinion E, gears into pinion F on shaft *c*, the latter having its bearings attached to the bar B. A bevel pinion *d* attached to the opposite end of shaft *c* meshes into pinion *e* placed loosely on the vertical shaft H. Pinion *f* meshes into wheel *j* of the box J, which is placed over disc *i;* the plate *k*, is attached to box J by screws *l*, and the washers *m* of raw hide are placed between the disc *i* and plate *k*. The dogs *o* are fastened in a groove on the periphery of the box J, and are adjusted in such a manner that when they strike against the arm *h*, the box J is prevented from turning when the article to be planed passes underneath the cutter and the shaft I continues to rotate. When the dogs *o* are not in contact with arm *h*, the box J revolves with shaft I, by means of the friction caused by plate *k* and washer *m*, upon disc *i*, which arrangement affords the means of stopping the lateral motion of the tool when the article to be planed passes under it.

Claim.—The friction box J attached to the shaft I, as shown, and provided with adjustable dogs *o o*, the box J being connected with the shaft H by the gearing *j f*, and operating conjointly with the gearing E F *b* and pawl *a* on the shafts *c c* H and the arm *h* which projects over the box J as shown, for the purpose specified.

No. 15,379.—Joshua Mason.—*Improved Cutter-Stock Metal Planers.*—Patented July 22, 1856.

As the bed E moves back and forth, the cutter-stock C will be adjusted or swung into an inclined position in consequence of the pins *f* striking against the spring *e*, and the stock swinging in the slot *g* of the plate *d*, will be adjusted at the end of each stroke so that the proper inclination will be given the tool D.

The inventor says: I do not claim a swinging or adjustable cutter-stock irrespective of the arrangement of the same; but I *claim* the

cutter-stock C, placed within a rim or band B, which is suspended by journals *a* within the frame or box A, the stock being provided with a sliding or adjustable plate L provided with a slot *g*, and the stock adjusted or operated at the end of each stroke of the bed by the pins *f f*, on the side of the bed, and the levers G H I K, the above parts being arranged as shown and described for the purposes specified.

No. 15,538.—CHESTER VAN HORN.—*Improvement in Planing Metal.*—Patented August 12, 1856.

The nature of this invention will be understood by reference to the claim and illustration. The object in having the beam D and consequently the tool attached to the uprights B is, that by this arrangement pieces wider than the bed plate A may be planed, as one side of the machine is wholly unobstructed.

Claim.—Supporting the cross slide F, by means of the uprights B B, with the beam D fitted between them at one side of the bed plate A and framing C, and having either one upright E or two at the opposite side of the bed plate and framing, substantially as described for the purposes set forth.

No. 14,279.—GEORGE H. CORLISS and ELISHA HARRIS.—*Improvement in Rolling Metal.*—Patented February 19, 1856.

A[1] is the article rolled on this machine; the operation of the machine will be understood from the claims and engravings. The position of the roller, represented by full lines, is the one where the latches L are thrown outwards, and the roller G is at the upper end of the oblique slots *e*. The broken lines represent the roller when confined to the lower end of the oblique slots by means of the latches, so as to be in contact with and operating upon the article to be rolled.

Claim.—The combination of the reciprocating roller carriage F with the guides D D and a table C, substantially as herein described.

2d. Raising the roller G for the purpose of placing the work between it and the table C, by fitting the roller carriage F to the oblique slots *e e* in the sliding-boxes E E, and providing latches L L, operating as described to secure the carriage in the sliding-boxes during the rolling operation, but to loosen them and allow them to run up the slots as herein set forth, at the termination of the return movement of the roller.

3d. The arrangement of the crank-shaft J relatively to the rolling table C and roller carriage F, substantially as herein described for the purpose set forth.

No. 14,332.—JOHN WRIGHT.—*Improvement in Bending Sheet Metal.*—Patented February 26, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The combination and arrangement, substantially as herein shown and described, of the setting down, bending, and finishing rollers or wheels H J, with the table or disc F for operation together, and in relation thereto and each other, in the manner and as specified; the one wheel I having a projecting ledge or head, for the purpose of gauging the "double seam," and clipping or holding it from "opening" whilst being bent, essentially as set forth.

No. 14,049.—REUBEN BRADY.—*Improved Machine for Sheet Metal Bending.*—Patented January 8, 1856.

The plates G are adjusted the required distance on the plate F, and motion is imparted to the roller A in any proper manner, and the metal sheets are passed between the rollers, and as they come in contact with the bed D they are bent in a cylindrical form; the apron or shield I prevents the curved sheets from coming in contact with the operator, and causes them to fall off the opposite side of the machine.

Claim.—I do not claim the concave bed and rollers, irrespective of the arrangement herein described; but I *claim* placing the upper roller F in an adjustable or swinging frame E, and attaching the guide and feeding-plates G G to said frame, when the above parts are used in connexion and operate conjointly with the permanent roller A and concave bed D for the purpose specified.

No. 15,964.—GEORGE W. BURLING.—*Improvement in Machines for Bending Sheet Metal.*—Patented October 28, 1856.

The blocks A and E are placed, respectively, on each side of the turns of the sheets of metal, so as to press the turns between them by operating the levers C and D; then, by turning the lever F, the folding block B is brought down into the position of fig. 3. The apparatus is now moved forward until the portion of the seam thus folded coincides with the paning part of the apparatus that is between 5 and 6, fig 1. The block B is now moved into the position of fig. 4, and the portion previously folded becomes paned. Then, by detaching the loose plates *e* and *m*, and thus dropping the apparatus, and by then repeating the entire operation as described, the double fold of the metal, as represented in fig 5, is obtained.

Claim.—1st. The combination of the bars A and E with the folding bar B, the same being arranged and operating substantially in the manner and for the purpose set forth.

2d. The loose plates *e* and *m*, in combination with the bars E A and B.

No. 15,069.—HENRY C. DOLE.—*Improved Shears for Sheet Metal.*—Patented June 10, 1856.

By raising the lever *e* to a perpendicular position, the blade *d* will be raised clear of the lower blade C, by reason of the upper part of *b*

being made to slide in the groove *f* as the wheel works on its axis at *a*. When the handle is brought down to a horizontal position, the shears will be quite closed by pressing the lower edge of the eccentric wheel upon the top of the blade at *b*. The other eccentric wheel N works on its axis *y* in the same manner, with this difference: the pitman J K being attached further from the axis in N than it is in its moving power H, it will, therefore, not move N as far as H is moved, and, consequently, the shears will not rise and fall at the back end as much as at the front end.

Claim.—The employment of pitman J K, levers and eccentric wheels N H, constructed as described, for operating the blades C D, in connexion with the adjustable gauge O, in the manner and for the purpose set forth.

No. 14,878.—Sylvester B. Miller and Ezra W. Whitehead.—*Improvement in Working Sheet Metal.*—Patented May 13, 1856.

The nature of this improvement consists in substituting pressure and rotation to one of the dies instead of a drop and percussion force for forming and stretching the material.

The inventors say: We do not claim a rotating die or counter-sink for making depressions by cutting and removing the material, as the means for d ing so are well known and are for another purpose; but we *claim* the employment of the die E, when constructed and used in connexion with the lower die N for extending or stretching thin metal plate by pressure and rotary motion combined.

No. 14,738.—Samuel R. Shepard and Orson W. Stow.—*Improvement in Working in Sheet Metal.*—Patented April 22, 1856.

By turning the nut I the outer edge of the guide H may be moved nearer to or further from the lip *g* of the roller G, by means of the screw *j* and spring J.

Claim.—The adjustable rotating guide H, attached to either of the rollers G.

No. 14,916.—J. B. Holmes.—*Improvement in Working in Sheet Metal.*—Patented May 20, 1856.

The corrugated sheet of zinc, to be guaged and bent, is laid on the metal plate 3, attached to the frame of the machine; the top plate 2 is then brought down upon it and holds the sheet of zinc to its original corrugated shape, while the grooved eccentric bending-shafts 4 4 revolve and bend the ends of the sheet of zinc down at right angles.

Claim.—The use of corrugated plates 2 and 3, operating in connexion with the eccentric bending and guaging shafts 4 4. .

No. 14,115.—EZRA RIPLEY.—*Improvement in Casting Metals.*—Patented January 15, 1856.

M represents the fluid metal, which enters the mould A through the aperture B. The partition C is formed of plates of metal, with vents or air-passages *a a* formed between them, for the purpose of communicating with the expanding air-chamber G.

The inventor says: I do not broadly claim exhausting the mould of air previous to, or while running in the melted metal; nor the use of moulds having vents arranged for the escape of confined or compressed air; nor do I claim the substitution of a simple expansive air-chamber for an air-pump, in casting metals by atmospheric pressure.

I *claim* instantaneously removing the air which ordinarily fills the mould into an air-tight expansive chamber, through crevices, like air-passages, arranged for the purpose, immediately after the open mouth of the mould is immersed in the fluid metal; all as herein described and specified, whereby the advantages herein set forth are attained.

No. 16,001.—ROBERT ANDERSON and AARON H. VANCLEVE.—*Improvement in Cutting Metals.*—Patented November 4, 1856.

The nature of this invention consists in combining a frame H, on which is erected a moveable carriage B, with a shearing or punching machine, of any known construction, by which the plates can be moved in a parallel line with that of the edges of the shears and punch, and the plates can thereby be cut and punched perfectly straight. Also, in combining with a shearing and punching machine, of any known construction, a traverse carriage R, to which pattern guides S are attached, for the purpose of cutting or punching metallic plates in reverse or irregular curves. Also, in combining a revolving table M with the traverse carriage R, and a shearing or punching machine, by means of which plates can be cut in circles.

Claim.—The use of the parallel table B, revolving table M, and traversing table R, in connexion with machinery for punching and shearing metals, when the said tables are constructed and operated in the manner described for cutting and punching straight, curved, or irregular forms of metals, as set forth.

No. 15,733.—JOHN FEIX.—*Improvement in Granulating Metals.*—Patented September 16, 1856.

The melted metal is poured into the inner vessel 2, and at the same time jets of water pass through the elbow-shaped tubes of pipe 3 into the cylinder 1, and coming in contact with the melted metal granulate the same, the water passing from the cylinder 1 into the space between cylinders 1 and 2, and escaping through a hole in the bottom of the latter.

Claim.—The use of the outer and inner vessels 1 and 2, when constructed and operated in the manner described, in connexion with the pipe 3 and its elbows, as set forth, for keeping the water in circulation and for granulating the metal.

No. 15,190.—JOHN MOONEY.—*Improved Tool for Cutting Metals.*—Patented June 24, 1856.

The nature of this invention consists in constructing the cutting-off tool in the form of a blade of uniform width, and enclosing the same in clamps in such a manner that when placed in the tool-post of the lathe, &c., and the set-screw brought to bear upon it, it may be held firmly, as if constructed in one piece as formerly.

Claim.—The use of the blade or cutter O, of a separate piece of metal, inserted in an adjustable clamp G.

No. 14,551.—WILLIAM F. BROOKS.—*Improvement in making Seamless Metal Tubes.*—Patented April 1, 1856.

This invention is an improvement of the roller dies for which letters patent were granted to Timothy D. Jackson, under date of February 28, 1854.

At *b* fig. 1, is shown a section of the mandrel and of the metal *m* in the process of being formed into a tube. A is the forming die. For effecting the loosening the tube is forced through a second roller die B, in which the face of each roller is concave, as shown at *c* fig. 2, whereby the tube is slightly distended by the pressing apart of the spaces between the ribs *a*.

Claim.—Grooving or removing the corners of the radial rollers R, so that a series of parallel projections *a*, or ribs, will be formed upon the tube, the rollers relieved from undue strain, protected from choking, and the reduction of the tube and the withdrawal of the mandrel *b* therefrom facilitated, substantially as set forth.

No. 15,348.—JOHN J. SPEED, jr., and JOHN A. BAILEY.—*Improvement in making Seamless Metal Tubes.*—Patented July 15, 1856.

The short thick tubular casting or ingot R, out of which the tube is made, is placed on the mandrel L^1, one end of it being connected to the circular plate O; and motion being given to the shaft C, a vibrating movement radially to the mandrel is communicated to the dies H J K, the two plates *d e* forming a toggle, and the upper die H when radiating inwards forcing down the two lower and lateral dies J K, till the latter arrive at a solid bearing or seat, when the circle formed by the combined curvatures of the inner faces of the three dies complete and close the two lower dies J and K by their relative position to the upper die H, effectually restraining the compressed ingot from giving out laterally, and thus effecting an equal reduction of the tube.

Claim.—We claim the three encircling and radially hammering or pressure dies, when arranged relatively to each other, and operating together on the tubular ingot while stationary, and in combination with the intermittent feed to the ingot or partially formed tube on or over the mandrel, alternate with the compressive action of the dies.

No. 15,513.—THEODORE GOMME and CHARLES EUGENE AUGUSTE BEAUGRAND.—*Improvement in Manufacture of Sheet-Metal Ware.*—Patented August 12, 1856.

This invention relates to the stamping of sheet metal by means of a puncheon f, while the surrounding parts or edges are held with more or less tightness between two rings d. The puncheon f is operated upon by means of a piston b^1, moving in a cylinder b and driven by steam. The rod f^2 can be made to slide within the piston rod b^2, and is attached at its upper end to a plate f^1, which serves to hold the work in place and subsequently to disengage it.

Claim.—The use of the rod f^2, sliding within the stamping puncheon f, for giving motion to the plate f^1, on the upper part of said puncheon, so as to hold the work in place, and subsequently to disengage it; the whole operating for preserving the thickness of the metal uniform when acted upon by the puncheon between the grooved and bevelled rings, as described.

No. 14,724.—JAMES JONES JOHNSTON.—*Improvement in Flasks for Moulding.*—Patented April 22, 1856.

The table C is raised or lowered inside the box by means of guides D D, a rack, and pinion, as seen in fig. 3. The patterns P are fixed on the follow board N, which is placed on the table C, and kept in position by pins O. The cover plate R has openings which correspond with the patterns P.

Claim.—The employment of the table C, follow board N, and plate R; the whole, when adjusted by the vertical movement in guides, being for the purpose set forth.

No. 14,637.—JOHN DEMAREST, assignor to "THE J. L. MOTT IRON WORKS."—*Improved Core-Bar for Pipe Moulding.*—Patented April 8, 1856.

The nature of this invention consists in making the core-bar b with end plates or wings d and e fitted on by a slip, which plates rest on the surface of the core-box a in making the core, and on the face of the flask in the act of moulding, to sustain and hold the core-bar in a true position without the use of bearers, so that the surface of the pipe inside and out may be cast smooth.

The inventor says: I am aware that core-bars have been made with wings between which to pack the sand, and which bind and hold the sand forming the core, and this I do not claim as my invention. And I am also aware that core-bars have been made with branches connected therewith by dove-tail joints, so that the branches of the core-bar can be separated in the pipe after the pipe has been cast; but those heretofore made are required to be sustained centrally in the mould by inside bearers, which injure the castings. I do not, therefore, wish to be understood as making claim to the connecting of the branches with the main core-bar by dove-tail joints irrespective of the side wings

or plates which rest on the surface of the flask to sustain the branches in a true central position without bearers; but I *claim* making core-bars for moulding curved elbow or branch pipes, and other such like hollow castings, with sustaining plates or wings at the ends, substantially as and for the purpose specified.

No. 15,054.—DANIEL DODGE.—*Improvement in Nail-Machines.*—Patented June 3, 1856.

The two hammers G G receive their motion from the cams H H; they are forced apart by the spring K.

The shaft B is put in motion, and the end of a bar is introduced between the hammers, resting it upon spring L on top of anvil D, until, by the repeated action of the roller and hammer, it is brought to the requisite point and length.

Claim.—The use of the roller F, the anvil D, and the hammer G G, constructed and operating either in combination with the spring L or without it.

No. 15,910.—PERRY A. WILBUR.—*Improvement in Nail-Machines.*—Patented October 14, 1856.

The nail plate is fed to the cutting tool by means of the feeding tube *s*, and the blank is cut from the plate by means of the cutting blades *u* and *s*; it is then caught by the movable griping jaw Z, and jammed up against the stationary jaw 8, whilst it is being headed, by means of the heading tool 12. The nail being completed and the griping jaw Z drawn back, a delivering arm 16 hung to a vertical rock shaft 17 is forced forward by lever 18, which extends back to a spring 19, operated by cam 2; so that at proper intervals, and as regularly as the nail is finished, it is thrown out of the gripers by said arm 16.

Claim.—The arrangement of the cutting, griping, heading, and delivery apparatus, with regard to the nail-plate feeder, so that the whole may be operated from one cam shaft substantially in the manner set forth.

No. 15,938.—PERRY A. WILBUR.—*Improvement in Nail-Plate Feeding.*—Patented October 21, 1856.—Antedated October 14, 1856.

The nail plate is placed in the feeding tube S, represented in detail in figures 3, 4, and is fed to the cutters by the follower *u*, operated upon by pinion M^3 and rack N. The object of the long pinion M^3 is to admit the lateral adjustment of the frame L and carriage M, for the purpose of increasing or diminishing the head and point of the blank. The semi-rotating motion of the feeding tube S, for the purpose of exposing the reversed sides of the nail plate to the tool *u*, is accomplished by cam H causing to vibrate lever *g* on its fulcrum *h*, imparting a reciprocating movement to pitman *z* and oscillating toothed sectors

. The forward and backward motion of the feeding tube is shed by the arrangement of a lever *l*, the end *o* of which slides the projections *p*. As the cam 7 presses down the end of said latter is pressed forwards, having free play as the bolt *m* rough a slot in said lever, and thus the bearings T^1 of the ube resting on the cross-piece *k* are moved forward and back- The process of cutting, griping, heading, and delivering the his machine is described in patent No. 15,910 issued to P. A. 14th October, 1856.

—Giving to the tubular nail-plate feeder its rising and falling, ating, and forward and backward movements, substantially in ner and for the purpose set forth.

claim the lateral adjustability of the nail-plate feeder, to change e at which the nail-plate approaches or passes under the cut- for the purpose of giving more or less head or point to the nilst said feeder continues to receive its multiple motion as set

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515.—Adolphus Heddaeus.—*Improved Nail-Plate Feeding ratus.*—Patented August 12, 1856.

rincipal features of this invention will be understood by refer- the claims and illustrations; a detailed description thereof ake up too much space to be given here.

.—1st. Connecting the feeding apparatus with the nail ma- ball wrists or universal joints in some point or points situated ical line through the centre of the nail when cut, and of locating oints of such connexion in this vertical line for the purpose of ne feed apparatus a lateral motion in the arc of a circle, whose in that vertical line, whereby the feed apparatus may be accu- djusted without stopping the operation either of the feeder or machine.

he use of an elliptical spring or steel hoop, as the bearing for r front end of the screw, in combination with the sleeve *s*, ball f^1, and spring g^1, for the purpose of allowing the turning of plate and drawing it back while turning.

he use of the large wheel G, constructed as described, in com- with the pawl *t* and pinion *p*, for the purpose of communi- ne requisite motion to the feed screw and nail plate, together cam wrench l^1 to lower the spring b^1 of the pawl *t*, whereby apparatus may be instantaneously stopped, without interfering e action of the nail machine or detaching the one from the

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174.—John P. Sherwood.—*Improvement in Nail-Plate Feeding ines.*—Patented March 18, 1856.

main shaft K revolves and with it the eccentric cam J. The wheel Z travels around in the concentric groove, and commu- a reciprocating motion to the sliding carriage A by means of

bar I. Around the shaft C are placed the slotted cams D D, forming a groove in which the stationary pin U works, thus compelling the shaft C to make a quarter revolution at each stroke. W is the handle of the nippers which hold the nail-plate N. It passes through the centre of the hollow shaft C, and has a screw cut on the back end which works in a female screw, formed by the jaws G G.

Claim.—The use of the grooved eccentric cam J with its friction roller Z and bar I, in combination with the slotted cylindrical cam D, nipper-handle W, and female screw, constructed and arranged as described, and operating to produce the peculiar movements necessary for feeding the nail-plate in nail machines, in the manner and for the purposes hereinbefore set forth.

No, 14,011.—RICHARD H. COLE.—*Improved Nut-Box.*—Patented January 1, 1856.

The movable segments *c c* which form the sides of the nut-box are placed in a cup-shaped case which has a perforated bottom A, and is provided with a rim *l*. The segments *c c* are adjusted and secured in any desired position within their enclosing case by means of the eccentrics *d d*, and the respective set-screws *e e*, *f f* and *g g*. The segments have projecting flanches *h h*, on their inner edges faced with steel so as to form cutting edges. The engraving represents a four-sided nut-box, which, by augmenting the number of segments, can be converted into a six or eight sided one.

Claim.—Having thus fully described my improved adjustable nut-box, what I claim therein as new and desire to secure by letters-patent is: The arrangement of the segments *c c*, the eccentrics *d d*, and the set-screws *e*, *f*, and *g*, with each other, and with the case A *l*, substantially in the manner and for the purpose herein set forth.

No. 14,452.—ROBERT GRIFFITH.—*Improved Nut Machine.*—Patented March 18, 1856.

The heated bar of iron is placed on the table C, the pressing block M forces it against the ledge of the table, while the punches *p* descend to make the holes. Before the punches are withdrawn, the saws *h* are brought forward to sever the nuts. As soon as the saws and punches are withdrawn, the pressing block is withdrawn by the motion of the cams *n n*, and is raised by the levers *o o*, acted upon by the cams *r r*. The arm *d* depresses the lever *c*, thereby tilting the table and discharging the nuts.

Claim.—The use of the compressors M, punches *p*, saws *h*, cams *n* and *r*, levers *o* and *c*, crank *d*, and travelling-head *b*, constructed, arranged, and operating as described, for the purpose of making nuts from heated bars, as herein set forth.

o. 15,001.—RICHARD H. COLE.—*Improvement in Nut Machines.*—Patented June 3, 1856.

The machine being in motion, the cam P strikes against the side *p*** of ıe sliding plate G, and carries the punch *d* towards the mouth of the ut-box; and at the same moment the cam *c* produces a rearward mo-on of the bottom *j* of the nut-box. As soon as the sliding plate H is rought in contact with the projection Z, the punch *d* brings the blank ıut in contact with the bottom of the nut-box, shaping the nut. The ıunches *e* and f^1 are now forced into the hot nut blank, until they nearly neet in the centre of the same, by means of cams *b* and *o*; the hole s thus formed in the nut blank by forcing the metal from the centre hereof into the body of the same, thereby causing the nut formed to be hicker than the bar from which it was cut. The punch f^1 is carried ıutward by cam *o*, whilst the punch *e* is carried forward by cam *b* hrough the nut, depositing the wad. The cam *a* strikes now the sur-face m^1 in the plate F and withdraws the punch *e*, while the bottom of he nut-box is carried forward to discharge the finished nut by means of ;am *c* and plate H.

Claim.—The arrangement of the round punch f^1 within an aperture in the angular punch *d*, at the same time that a round punch *e* is arranged within an aperture in the bottom *j* of the nut-box, when the said round punches are combined with movements which cause them to act jointly in perforating holes in the nuts formed in said nut-box, substantially as herein set forth.

I also claim the joint arrangement of the angular punch *d* and its exterior round punch f^1 with the bottom *j* of the nut-box and the in-terior round punch *e*, when the said bottom of the nut-box is combined with a spring, or its equivalent, in such a manner, in relation to the said ıngular punch *d* and the round punches *e* and f^1, that the action of the ıaid parts in forming a nut will cause the completed nut to be thicker han the bar from which the blank was cut, substantially as herein set orth.

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o. 15,861.—WILLIAM E. WARD.—*Improvement in Nut Machines.*—Patented October 7, 1856.

A detailed description of this machine would take up too much space be given here. The main features of the invention will be under-ood by reference to the claims and engravings.

Claim.—The two punches *g* and *h*, arranged side by side and opera-d substantially as described, for punching the central hole, cutting f the blanks from the bar, and discharging the same, substantially as de-ribed, in combination with the two holes or two dies, so that a hole is ınched in the bar for another nut during the continued motion of the ınch to discharge the nut which was cut off during the previous part the same motion.

Also, in combination with the punching and cutting operation, or ther, and with the mandrel a^1, or its equivalent, for entering the cen-al hole of the nut blank, the employment of the spring jaws *q q*, or

the equivalents thereof, for transferring the nut blank from the die to the mandrel, and there holding it until the mandrel enters the holes, substantially as described.

Also, the holding of the nut blank on the mandrel, in combination with the swages b^1 and b^2, for swaging the faces of the nuts, substantially as described.

Also, in combination with the mandrel a^1 for holding and turning the nut blanks, substantially as described; the employment of the hammers q^1 q^1 for hammering or swaging the edges of the nuts, substantially as described.

Finally, the combination of the swages b^1 b^2 for swaging the faces of the nuts with the hammers q^1 q^1 for forging the edges of the nuts, substantially as specified, by means of which the metal is thoroughly compacted in all directions, and a good finish given to the entire blank.

No. 16,142.—Robert Griffiths.—*Improvement in Nut Machines.* Patented December 2, 1856.

Motion being imparted to the machine, the heated iron is introduced, as represented at *z*, and the tables J and K holding the dies *n* and *m* are caused to approach each other by the action of cams *c* and *d*, and the iron is confined between them, at the same time that the cutter bars separate it into the blanks required. The blanks are now acted upon by the opposite punching bars N, operated by the cams *t*. The punching bars continue to advance until the shoulders of the punching bars have forced the strippers R against the nuts, so that the latter become pressed between the ends of the cutter bars and the stripper plates R. As the punching bars recede, their ends are released from the nuts by means of stripper R.

Claim.—1st. The manner, substantially as set forth, of securing the punching and cutting bars between the sliding plates, for the purpose specified.

2d. The combining of the punching and cutting bars with the strippers, the said strippers being whole or divided, and operating in either of the methods specified.

No. 16,188.—Charles Ratcliff.—*Improvement in Nut Machines.*— Patented December 9, 1856.

The operation of this machine is as follows: The rolls *a* and a^1 being rotated in the direction of the arrows, and the end of an iron bar B being inserted, a portion suitable for a nut will be cut off; then, as the rolls revolve, the punch *d*, being forced outwards by a cam on the shaft of the respective roll, forms the eye, the punching being received and held by cavity *g*. The nut, being formed, is expelled at a suitable part of the revolution by the moving outward of the sliding-die *c*.

The inventor says: I do not claim any peculiarity in the manner of punching, nor in the operation of the dies, separately considered.

I *claim* the two sets of dies, counter-dies, and punches, arranged alternately upon the peripheries of a pair of rolls, substantially as set forth.

No. 15,003.—RICHARD H. COLE.—*Improvement in Making Nuts.*—Patented June 3, 1856.

The nature of this invention will be understood by reference to (No. 15,001) Richard H. Cole's improvement in nut machines, patented June 3, 1856.

Claim.—Forcing a portion or the whole of the metal displaced in forming the holes in the nuts into the bodies of the nuts, by which I am enabled to make the nuts thicker and more compact than the bar from which they are cut, all substantially as herein set forth.

No. 15,004.—RICHARD H. COLE and JOHN C. COLE.—*Improved Machine for Polishing Metallic Nuts.*—Patented June 3, 1856.

The surfaces of the nuts are smoothed off by the action of the cutters *i i* of the planing-wheel D as they are carried in a guiding channel *f* under the centre of said wheel upon pins *c c* which project from alternate links of an endless chain, composed of the links *a* and *b*, as shown. The nuts are supported by the side plates *d d*, which rest on plates *e e*, the plates *d d* being secured by means of set-screws *g g*.

Claim.—The arrangement of the planing-wheel D and the nut-carrying endless chain with the partially inclined and partially horizontal groove *f*, the sustaining plates *e e*, and the edge guiding plates *d d*, or their equivalents.

No. 16,039.—WILLIAM H. PLUMB.—*Improvement in Crushing Rollers for Ores, &c.*—Patented November 4, 1856.

The roller C is mounted on permanent bearings, and the position of the roller *g* can be adjusted by moving the boxes *d* in the bearings b^1 to one or the other side, and securing the same in any desired place. The bearings of roller g^1 are supported by two arms *f* extending from the adjustable shaft *e* to the shaft of the roller *g*. By this arrangement the pressure of the roller *g* upon roller C can be regulated to any desired degree.

Claim.—The construction, combination, and arrangement of the stationary and movable roller adjusted to the work to be done, in the manner and for the purposes set forth.

No. 14,182.—WILLIAM BALL.—*Improved Ore Washer.*—Patented February 5, 1856.

The trough I receives a vibrating motion while the tubes E revolve, through which the water enters the trough. The water is admitted in

quantity much greater than can pass through the holes *s*, and continually flows over the inner edge *q* of the trough. The pulverized ore rises sufficiently high to pass over the ledge *k*, when it is immediately washed through the holes *s* by the stream of water constantly passing through them.

Claim.—The trough I, when constructed with the ledge *k*, as described, and operated in connexion with a head of water kept above the level of the said ledge, in the manner herein set forth.

No. 14,388.—WILLIAM L. CARTER.—*Improved Ore Washer.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I am aware that a cylindrical vessel, with a current of water forced against the material passing through it, has been used for washing ores. This I do not claim. But what I do *claim* is, a conical vessel provided with shovels and pins, or projections, whose shaft is horizontal, and lower side inclined, so that water introduced at one end shall have a natural flow to the other end, and meet the ores as they pass in an opposite direction, to wash them, substantially in the manner and for the purpose set forth.

No. 15,544.—HEZEKIAH BRADFORD, assignor to HORATIO BOGERT.—*Improved Ore Washer.*—Patented August 12, 1856.

The lumps of ore are fed from hopper *g* into the inside of a rotary perforated cylinder *a*, armed on the inside with numerous teeth, which, as the lumps of ore are rolled over by the rotation of the cylinder, scrape and loosen the clay and other foreign substances, which are then washed off by the agitation of the water induced by the rotation of the cylinder. The lumps, when reaching the other end of the cylinder, are taken up by curved and perforated scoops *i*, which lift them up and discharge them through a central hole *h*, while the water drops back into the cylinder through the perforations in the scoops, and carries the foreign substances from the cylinder into the trough *k*, and through a discharge hole *p* in the bottom, which is governed by a valve *m*.

Claim.—I claim the employment of a hollow perforated cylinder rotating on a horizontal or nearly horizontal axis, provided with numerous pins or teeth on the inner periphery pointing towards the axis, combined with a feeding aperture and hopper at one end, and lifting scoops and delivery aperture at the other end, and with a water trough or vessel, within which the lower part of the said cylinder revolves, the said trough or vessel being provided with a delivery aperture controlled by a valve, all substantially as and for the purpose specified.

No. 15,827.—SAMUEL THOMAS.—*Improved Ore Washer.*—Patented September 30, 1856.

The material to be washed is thrown into the trough A at its lowest end, said trough being filled with water; and as the shafts B are rotated, the material is lifted up and carried forward at the same time by the spiral flanges *b*, entirely separating the ore from the other material with which it is mixed, and carrying it up to the delivery end of the trough.

The inventor says am aware that an inclined revolving vessel has been used in washing ores, and that a single shaft provided with shovels and spiral flanges has been used. I do not claim either of these things, separate or combined.

But I *claim*, in combination with a stationary inclined box, the double shafts, with spiral flanges thereon, and turning in opposite directions, for lifting up and carrying forward the ores to the delivery, in the manner set forth.

No. 14,234.—THADDEUS FOWLER.—*Improvement in Sticking Pins in Paper.*—Patented February 12, 1856.

The depressions *a* in the plate C are suited to receive the pins, and are so shaped that the heads will not be above the surface of the plate. The ends of these depressions have a recess *x* for the reception of the pin-heads, and are scarfed out, as seen at *b;* so that any pins that pass down point foremost, even though they fall into the recesses, will readily pass out again, causing all the pins contained in the depressions to have their heads downwards. For the purpose of filling the depressions with pins, a number of pins are thrown upon plate C, which then receives a shaking motion, it being held at the same time slightly inclined. When the recesses are filled, the plate C is placed as shown at fig. 1. The holder D, with the crimped paper P upon it, is then turned round so as to rest flat on form C; it is then turned back to its first position, (the paper-holder and plate C being firmly held together,) when all the pins will rest in the depressions in the crimped paper, as seen at *i*. The form C is then removed, and the frame A turned around hinge *f f*, when the bars *g* will rest on the barrels of the pins, to hold them steady, while the bars *h* will rest against the heads of the pins; the paper-holder is then drawn forward (see arrow *y*) until the pins are inserted in the paper to the proper extent.

Claim.—The use of the form fig. 2 for separating, arranging, and spacing the pins, when combined with the paper-holder D for the purpose of transferring the pins to the prepared paper ready for sticking, when both are constructed, used, and made to produce the result, substantially as herein described.

Also, the combination of the paper-holders D with the frame A, when constructed, arranged, and used for inserting the pins into the prepared paper, substantially in the manner herein described.

No. 15,871.—LYDIA ATWOOD & CHAUNCEY O. CROSBY, administrators upon the estate of CHARLES ATWOOD, deceased.—*Improvement in Sticking Pins in Paper.*—Patented October 14, 1856.

A detailed description of this machine would take up too much space to be given here; the main features of it will be understood by reference to the claims and engravings.

Claim.—1st. The vibrating nippers V, armed with a knife or double inclined plane for separating the pins, turning them from a vertical to a horizontal position, as specified.

2d. The straight inclined conductor K, when combined with the nippers V, with their separating points as carrier, as described.

3d. The lipped driver K, for driving the pin along the railway or bed laterally into the groove to be stuck into the paper, when it acts upon the pin before the vibrating nipper lets go its hold.

4th. The lateral driver, or its equivalent, for the purpose of delivering the pin under the spring-holder *y*, as a means of controlling the pin until it is inserted into the paper.

5th. The combination of the sticking driver P and its guiding groove with the vertical crimping bars, when the bars permit the paper to pass over their ends vertically in the process of sticking pins.

6th. The feeding rollers Y^2 z^2, or their equivalents, for the purpose of holding the paper and controlling it at such a distance from the guiding rollers x^1 x^1 x^2, as will allow the paper to pass up and down without moving the spools while the rollers are in motion.

7th. The rollers and carriages which control the pins and paper, for the purpose of moving the paper forward intermittently, and up and down intermittently, to space off the rows of pins, and to space the distance between each succeeding pin in the same row, the ends of the paper resting on spools Y^2 z^2 dissected from the machine.

No. 15,877.—WALKER B. BARTRAM.—*Improvement in Sticking Pins in Paper.*—Patented October 14, 1856.

The operation of this machine is as follows: The paper is conducted over the top of the jaw P^* of the holder down below the jaws P^* P, and between the ends of the forceps O and bar Q, from whence it descends to the roller F, passing between said roller and the band *d*. Motion being then imparted to the shaft C, the paper is crimped by the crimpers I to form the creases which receive the pins, while the holder P P^* is open. During the operation of the creasers, the box U receives its movement towards the pins in the lower part of the feeder, and its bars *y* y^1, after taking a sufficient number of pins, slide one by one under the plate U, and place the pins at proper distances apart in the slot v^1 of said plate. The crimpers now move out of the way, and the holder P^* P comes in operation and seizes both the pins and the paper alongside of them, about the same time as the forceps O come in operation to seize the creasers; and then box U swings back to carry the separating bars from between the pins, and the plate T slides outward from the machine to make room for the descent of the driver L, which comes down and drives the pins through the crease, the holders open-

ing as soon as the heads of the pins have been received within the recesses in the face of the driver, and their points entered in the first crease in order to let the driver L pass down between them. The driver, after this operation, is quickly raised by spring 24, and the plate T is pushed up again to the feeder; after which the lever H, with its dog *e*, comes into operation on the ratchet G, and moves the wheel F, which takes away the row of stuck pins, and draws from the roll B a supply of paper sufficient to receive the next row. When the bars *y* move forward to take the pins, the outward bar y^* knocks away the stop-lever Y from in front of the pins. As the bar y^5 moves from under the feeder towards the plate T, the pins in the feeder S are caused to follow it by the action of gravitation on those pins in the inclined part of the feeder. As the bar y^5 reaches the point where the first bar *y* stood when the separator and spacer moved forward, the stop Y is thrown across the slot *v* between the front pin and the said bar y^5, and thus prevents the pins from moving any further, and retains the lowest pins in a position ready for the next operation of the spacer and separator.

Claim.—1st. I *claim* the separator and spacer, composed of a series of bars $y\ y^1\ y^2$, etc., having a simultaneous movement at right angles, or nearly so, to the line of pins in the pin feeder, andto the line in which the pins are inserted, and a movement one after the other in a direction parallel, or nearly so, to the said line, and operating substantially as and for the purpose set forth.

2d. The construction of the driver L, with recesses in its face to receive the heads of the pins, and act in conjunction with the paper after the points of the pins have penetrated it, to serve the purpose of guiding the pins straight and parallel through the paper, thus enabling the holder to be opened to make room for the driver, substantially as described.

3d. The stop Y acting in combination with the separator and spacer, substantially as described, to retain the pins behind the separator and spacer after a number sufficient for one row has been taken from the feeder by the separator and spacer, but to be moved away by the separator and spacer.

4th. The bar Q operating in combination with the forceps *o o*, substantially as described, to form a second holder below the principal holder P P^*, and more perfectly secure the upright and parallel position of the pins during the commencement of the driving operation.

No. 15,111.—John I. Howe and Truman Piper, assignors to the Howe Manufacturing Company.—*Improvement in Japanning Pins.*—Patented June 10, 1856.

The metal plate *h*, with the sheet of paper charged with pins, is placed on top of the frame *b*, with the sheet of paper above the plate, and with the heads hanging downwards. By turning the screw *e*, the frame is let down until that part of the pins depending below the plate is immersed in the compound. When coated, the plate with the pins

is put into an oven; when the pins are taken from the oven, the metal plate is turned up side down, and the sheet of paper drawn off, so that the pins will hang in the plate by their heads, which will allow of their being coated entirely.

Claim.—The inventors say: What we claim, as our invention in the process of japanning pins, is dipping a portion of the length of the pins *g* in the compound, whilst inserted in a sheet of paper *i*, and with one end downward, and then subjecting them to the baking operation, substantially as described, in combination with the second dipping and baking in the reversed direction, to japan the remaining portion.

And we also claim controlling the pin during the process, substantially as described, by sticking the pins into the sheet of paper, through holes in a plate of metal *h*, or equivalent substance, the said holes being of sufficient size for the free passage of the shanks or barrels of the pins, but not for the heads, so that after the first dipping and baking, by reversing the plate, and pulling off the sheet of paper, the pins will hang by their heads for the second dipping and baking.

No. 15,091.—J. B. PERRY.—*Improved Machine for Sticking Pins.*—Patented June 10, 1856.

While the paper is being crimped and transferred from the crimper to the jaws, (patented 1855,) the cut-off has dropped one row of pins down against the plate B; the notched cross-bar D, by means of the lifting-rod C, commences its upward movement, striking the row of pins just back of the points, and slightly slipping lengthwise towards the head, tending to keep the pins firm in the notches, and against the conductor A, and carrying them with the plate upward until said plate rests upon the surface of the conductor. The conductor commences its forward movement by means of the same lever and cam, which gives motion to the fingers, (patented 1855,) and continues until the pin is thrust forward into the crimped portion of the paper. After the conductor commences its movement, and the pins enter the crimp, the cross-bar is released, and brought back quickly by the spring to its resting point, and ready for a new operation.

Claim.—1st. The movable conductor or conductors A, with notches for the head to hold the pins and push them into the crimped portion of the paper.

2d. The movable notched cross-bar to correspond with the notches in the conductors, and the movable plate, or its equivalent, to hold the pins in their proper place, while the pins are thrust to their place by the conductor.

3d. The combination of the movable conductor or conductors, the apparatus for changing the position of the points of the pins, and holding the same with the clamp or jaws which hold the paper while the pins are thrust through.

No. 15,112.—JOHN J. HOWE and TRUMAN PIPER, assignors to the HOWE MANUFACTURING COMPANY.—*Improved Machine for Sticking Pins.*—Patented June 10, 1856.

The attendant slides the grooved plate *d* forward and back under the channel-way *a* to charge the grooves with a row of pins. The whole row of pins is then forced forward through the holes in the plate *j*, and into the sheet of paper behind it, by a follower *t*. As the pins are pushed forward by the follower they are guided by the grooves *c* in the plate *d;* and as the points pass through the sheet of paper, it is sustained by a grooved bar *x* back of the frame which holds the sheet of paper. As the lever *p* is moved back to withdraw the follower *t*, the frame *h* is lifted, together with the pierced plate and sheet of paper, elevating the row of pins and presenting the next row of holes on a level with the grooved plate *d* to stick another row of pins.

The inventors say: We do not wish to be understood as limiting ourselves to the special construction and arrangement of the parts, as equivalent constructions and arrangements may be substituted within the range of our invention; but we *claim*, in combination with a guide-groove or grooves and a follower, substantially as specified, the employment of the sliding frame for holding and shifting the sheet of paper, substantially as described, that the pins may be properly spaced and inserted in the sheet of paper, at right angles, or nearly so, with its surface, as set forth. And we also claim, in combination with the guide-groove or grooves, follower, and holding and shifting frame, substantially as and for the purpose specified, the employment of a perforated plate, substantially such as described, and interposed between the guide-groove or grooves and the sheet of paper held in the frame, that the pins may be inserted simultaneously in the plate and in the sheet of paper.

No. 16,199.—LYDIA ATWOOD and CHAUNCEY O. CROSBY, administrators upon the estate of CHARLES ATWOOD, deceased.—*Improvement in Machines for Sticking Pins.*—Patented December 9, 1856.

A detailed description of this invention would take up too much space to be given here; the principal features will be understood by reference to the claims and engravings.

Claim.—1st. The twisted inclined conductors, as described, as a means of changing the position of the pin, as specified.

2d. The falling railway G, as described, for the purpose set forth.

3d. The separating, measuring, and spacing bolts or instruments, terminating in a double inclined plane in the manner substantially as described.

4th. The retarding spring *e*, as described, for holding the pins in check upon the rails while being acted upon by the dividing instruments.

5th. The chuck for holding, guiding, and moving the paper, when made to operate as described, or in any manner substantially the same.

6th. The elevator or plate Q for raising, holding, and delivering the paper, in the manner and for the purpose specified.

7th. The connexion of the guiding grooves with the follower or driver, in combination with the falling railway G and the retarding spring *e*; and also of the guiding grooves and railway in combination with the dividing, separating, or spacing instruments used as specified, or in combination with the inclined conducting channel, as described.

No. 15,874.—LYDIA ATWOOD and CHAUNCEY O. CROSBY, administrators upon the estate of CHARLES ATWOOD.—*Improvement in Papering Pins.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Fabricating a new article of manufacture called diamond pin-cushions, by sticking pins in ranks or rows through a staple or U-shaped piece of paper, the heads of the pins projecting sufficiently far to allow the pins to be easily and conveniently withdrawn by the fingers for use. The pins being inserted upon two planes of the paper, with the heads projecting beyond the points a suitable distance to protect the points of the pins from being doubled or blunted, all the other portions of the pins being protected by the paper and sustained by it at a short distance from the heads and points by the paper making a solid mass of pins set in diamonds with regard to each other, but not in contact, and which usually contains the requisite quantity of pins for an ordinary paper for toilet use in a small compass, as specified and represented.

No. 15,404.—E. S. WOODFORD, assignor to JAMES R. KEELER.—*Machine for Sewing Pins upon Paper or any other Material.*—Patented July 22, 1856.

The pins are placed in a hopper attached to the upper end of the conductors A, and by a jarring motion a constant supply is shaken out upon the conductors; the body of the pin drops through the slot in the conductor, and is suspended by the head; a column of pins in the conductor is thus pressing against the separator B, which is turned by lever N sufficiently to let one pin at a time pass under it as often as required, dropping down the conductor into the turn-table C. The point of the pin, as it falls from the separator B, strikes a bar, throwing the head overlaying it horizontally in turn-table C.

The ratchet-bar S is now removed by lever T, carrying turn-table C around sufficiently to allow the pin to drop into the perpendicular conductor F, on the top of which said turn-table revolves. The pin now passes down the conductor F on to the periphery of wheels E; as wheels E are turned by eccentric L and lever N, the pins drop into the notches in the periphery of the wheels, and are brought down in front of the needles to be sewed upon the paper. The paper is upon roller O, and passes down in front of wheels E, bar S pressing against said wheels, holding the pins in the notches after they pass below shoe

v. The sliding plate G and 2, to which are attached the horizontal and perpendicular needles, is now driven forward and upward, sewing the pin fast to the paper, being still in the notches of the wheels. The feed motion is given to the paper by the partial revolution of wheels E, the pin last sewed being held in the periphery of said wheels by bar S, the wheels E receiving a constant supply of pins from conductors F, bringing them down against the paper to be sewed. The whole machine is operated by turning the crank I.

Claim.—The roller or separator marked B, made of India-rubber or other elastic substance. Also the turn-table, marked C, for receiving and changing the pin from one place or position to another, or their mechanical equivalents.

Also, the combination of one or a series of conductors for supplying pins in any desirable position, and a sewing machine of any suitable adaptability for sewing pins upon paper or any other material; but I do not make claim to either of these elements of the combination by itself.

No. 15,860.—CALEB C. WALWORTH.—*Improved Machine for Finishing Gas-Pipe Fittings.*—Patented October 7, 1856.

The operation of this machine is as follows: By moving the wrist plate *u* from the left to the right, all the tools C are made to approach the work *v*; and by depressing the lever F, a screw-nut in the collar *f* will be raised to engage the screw *z*. By now reversing the motion of the pulleys and by depressing the levers 2, which will cause the pulleys to rotate in the direction of the arrows, the nut and screw engaging, the mandrel *c* advances with a rotary motion, until the part *e* of the coupling advances beyond the action of the faces in the axial plane. When the coupling becomes unlocked, then the inclined faces of both parts of the coupling act against each other by the continued rotary motion of the mandrel; and consequently the part *e* being secured from further advance by the engagement of the tool in or against the work, the action of the inclined faces causes the part *d* and pulleys thereon to move backward, and by that movement, communicated to the shipper 1, reverses the direction of the motion of the pulleys, which continue so to revolve, and withdraw the mandrels until the nuts run off the screws, which will now revolve without any further effect.

Claim.—The arrangement and combination of the machines operating substantially as described in a plane around a common centre, for the purpose of screwing or tapping different ends of gas-pipe fittings at the same time when connected by means of a wrist plate and slotted connexions, or their equivalents, for the purpose of bringing the taps to their work, and yet permit either of them to advance or recede without interfering with the others.

No. 15,620.—JOHN ROBERTSON.—*Improvement in Making Lead Pipe.*—Patented August 26, 1856.

The hydraulic ram B is pumped up, carrying the lead piston C with it high enough to allow the molten lead to be poured into the cylinder

D; the lead in the cylinder D having set, the core I is firmly held in the partially contracted lead. The piston C being set in motion moves freely over the core I, compressing the lead until the pipe begins to issue between the core and the parts *k*, the core I moving with the piston C until it comes to the bottom of the cylinder. When returning, the core I being held firmly in the die by means of the compressed lead until the piston C moves up a small distance, the guide *h* then presses against the head of the core and lifts it up with the piston to the proper position to receive the succeeding charge.

The inventor says: I do not claim as my invention any part of the cylinder, nor of the dies, nor of the arrangement thereof in the cylinder, nor of the manner of adapting these to the hydraulic press, nor the mode of operation generally; all of which have been substantially described in the specifications of the patents of Thomas Burr, heretofore referred to.

But I *claim* the construction and arrangement of the core I with the guide *h h*, in combination with the piston C, for the purpose set forth.

No. 14,071.—SHUBAEL WILDER.—*Improved Puddle-Ball Squeezer.*—Patented April 15, 1856.

This is an improvement on "Henry Burden's patent revolving forge hammer," patented December 10, 1840. The nature of the invention will be understood from the claim and the engravings.

Claim.—The employment of the circular flange A, constructed in sections, the same being connected by bevelled dove-tail joints, in the manner and for the purpose herein set forth.

No. 14,242.—SOLON S. JACKMAN.—*Improved Elevator for Puddlers' Balls.*—Patented February 12, 1856.

The chain 5 is connected to the rear end of lever *p*, and the chain 4 is connected with one end to the plate *s*, and with the other end to lever *p*. The object to be elevated is placed on plate *s* when depressed as in fig. 1, one end of lever *p* being then depressed by drawing the chain 5, and the other end raising the stem *r* perpendicularly, and with it the plate *s* and its load. When sufficiently elevated, the chain 4, on receiving its strain, tilts the plate *s*.

Claim.—The use of the pulley-lever *p* and brace *q*, in connexion with the stem or supporter *r* and tilt-plate *s*, constructed and operated substantially as described and for the purpose set forth.

No. 14,166.—RUFUS PORTER.—*Improved Punching Machine.*—Patented January 29, 1856.

The object of this arrangement is readily to accumulate a sufficient quantity of momentum power to punch holes with facility through cold metals. When the wheels have been in motion so as to acquire the

necessary momentum, the quadrants J are pressed rearward by the hand, when the tappet *s* will strike the cross-bar N and thereby depress the punch-rod I.

Claim.—The use of the double quadrant J J, in combination with the tappet S and the sliding-shaft I, when their several parts are arranged and operated, in connexion with the fly-wheel G, substantially in the manner herein set forth.

No. 14,866.—EDWARD HEATH.—*Improved Punching Machine.*—Patented May 13, 1856.

The cylinder J is turned till the proper punch is brought under the plunger-rod I, the lip *g* fitting in the recess *f* in the punch, and the pin *h* being forced by the spring N into one of the holes *i* to retain the cylinder in proper position.

Claim.—Placing a series of punches L of varying sizes and forms in a flanched rotating cylinder J, arranged relatively with the plunger-rod I, as shown, so that by rotating the cylinder either of the punchers may be brought in line and connected with the plunger-rod I.

No. 14,357.—F. R. FORD.—*Improvement in Riffle Boxes.*—Patented March 4, 1856.

The water charged with gold-containing earth is forced underneath the dash-boards E, where it is brought in contact with the stratum of quicksilver at the bottom of the box, and is forced over the riffles C. The quicksilver being in one body is not liable to be broken into little globulæ and carried away with the water.

Claim.—The arrangement of the riffles E and C, in respect to the surface of quicksilver, as herein described.

No. 14,137.—EMMONS MANLEY.—*Improved Riveting Machine.*—Patented January 22, 1856.

The punch *e* is connected at its lower end with a spring *f*. By thrusting back hand-rod B the said spring is compressed by means of slide *j*, the slide being operated by rod F attached to lever A. The compression of the spring thrusts the punch *e* upward, and the latter, in consequence of its tapering shape, moves the anvil *d* back. The punch then protrudes through the hole *m* in the anvil far enough above its face for the purpose of piercing the laps of the sheets to be riveted. The sheets are then laid upon the punch, and receive a blow from the hammer D, piercing a hole for the rivet. The hand-rod being pulled forward, the punch is drawn below the face of the anvil; and the anvil, by means of spring *n*, is moved forward so as to furnish a foundation for the rivet direct over where the hole for punching was and directly under the riveti sink in the hammer. The shaft of the hammer D is provided with spiral grooves *p;* as often as the hammer flies back, the dent *r* enters

one of the spiral grooves in order to turn the hammer sufficient to bring alternately a punching hole *o* or a riveting hole *z* of the har face over the work. The mandibles *q q*, which are worked by connected to lever A, carry forward and place the rivets on the under the hole punched in the sheets.

Clai.n.—What I claim as my invention, and desire to secu letters patent, is the arrangement of the punch *e*, lever A, and mar *q*, in relation to the anvil *d* and self-adjusting hammer-head D, i manner and for the purposes set forth.

No. 14,897.—JAMES N. ASPINWALL, assignor to HENRY E. STAF JAMES N. ASPINWALL.—*Improvement in rolling File Blanks.*—Pat May 13, 1856.

The bar is placed between the proper groove *l*, the end of th being in contact with the stop M, which determines the proper l of the bar which is to be acted upon at once; a continuous motion thus given to the rollers, the bar will be acted upon and forced out between the rollers, the concentric grooves compressing a portion bar into proper shape on two sides; the two opposite sides are th serted between grooves corresponding to it in thickness, and th will be then compressed in proper form in two directions; see fig. which a flat file blank is shown in dotted lines, l^2 representing the gr for a flat file blank, said grooves forming the face sides, and *l* the gr for forming the two opposite sides.

Claim.—The use of the rollers A B, as described, for formin blanks, when said rollers are operated and adjusted by the slide *k* I, and springs *d*.

No. 14,552.—JOHN W. BROWN.—*Improvement in Rolling Railway B* Patented April 1, 1856.

The improvement has for its object the rolling of the bars into forms successively as to cause all parts of the rail to be submitt the rolling process to as nearly as possible an uniform degree of ing and compression, thereby preventing the separation of the and flange, and making all parts of the rail of equal density.

The numbers denote the order of succession in which the gr of the rollers A and B receive the bar.

Claim.—So forming one or more of the grooves of the rolle shown at 3, fig. 1, as to produce a depression or cavity all along side of the bar which is to form the base of the rail previously t reduction of the bar to form the neck, said cavity to be filled u the displacement of the iron from the middle of the rail, by the s quent rolling operation, substantially as described.

No. 16,087.—Richard G. Holmes and W. H. Butler.—*Improved Burglar-Proof Safe.*—Patented November 18, 1856.

The sides and door of this safe are composed of sheet iron *a*, to which the chilled cast iron is bolted; the latter material can only be reduced by grinding, and it would, therefore, require a great deal of labor to fit the door to the sides. This is avoided by fitting a loose piece K of wrought-iron into respective rebates of the door and sides, which in this manner can be joined perfectly tight.

Claim.—The loose fitting pieces K, applied substantially as described, to be received partly into a rebate into the door, and partly in a groove in the door frame, substantially as and for the purpose set forth.

No. 14,600.—John J. Crooke.—*Improved Sash Fastener.*—Patented April 8, 1856.

Fig. 1 represents the two parts A and B of the sash when the window is closed, and the lines b^1 represent the bolt *b* when locked; in bringing the knob c^1 to the position *c*, the bar *i*, actuated by the spring *l*, will catch under the projection *e* and secure the bolt in its position. When the window is raised, the plate C pushes the roller *o* back; and as soon as the sash rail gets past, the roller slides back again. Therefore, in shutting the window, the plate C^1 pushes back the roller, and drives the cross-bar *i* against its spring *l*, which relieves the projection *e*, causing the bolt to spring out and lock the window.

Claim.—Combining with the bolt of a self-acting window latch an engaging and disengaging catch, constructed and operated as described.

No. 15,523.—William Patton.—*Improved Sash Fastener.*—Patented August 12, 1856.

The bolt A is pivoted at *e* to the plate B in such a manner that the main body is hung outside the pivot *e*, and is arrested from swinging too far outside by the stud *c*. In the position as represented in the illustration, the sash cannot be raised, as the upper part of the bolt bears against the catch *r*. The bolt can be operated upon by means of the arm *i;* and when freed from the catch *r*, the sash can be raised and the hook *m* will fall into the next recess, and will be held there by means of catch *n*, which will hold the sash suspended.

Claim.—The described supporting and self-locking sash fastener, composed essentially of the plate B, bolt A, and catch *n*, when said bolt is arranged in an upright position, and hung forward of its fulcra, so that its whole weight shall tend to throw it into the catches; the whole being constructed and operating together, and in the manner and for the purpose set forth.

No. 14,028.—Joseph Marsh.—*Improved Sash Lock.*—Patented January 1, 1856.

A weight lever A and sliding bolt B are enclosed between two plates D and C. The bolt and lever are connected as represented in fig. 2. When the bolt is ejected by turning the handle A^1, the weight of the sash bears on the edge *e* of said bolt, and the bent edge of the plate C will prevent the withdrawal of the weight until the weight is removed. But on gently raising the sash, the bolt drops down towards *e* and frees the notch *d*, allowing the bolt to be operated by the lever and handle A.

Claim.—Having thus fully described my invention, what I *claim* as my invention, and desire to secure by letters patent, is, the construction and arrangement of the plates C and D, the lever A, and bolt B; said bolt having the secondary locking notch at D, operating in the manner and for the purpose substantially as described.

No. 15,343.—Lucius Page.—*Improved Sash Lock.*—Patented July 15, 1856.

By taking hold of the stud I, and raising the weighted arm D turning on the fulcrum G, the pinion E on the same shaft will be caused to work the rack C of the bolt B, and will draw said bolt backward; by suffering the arm D to fall by means of the weight *e*, the bolt B will be impelled forward by the same arrangement.

Claim.—The combination and arrangement of the weighted arm D, the rack *c*, the sectoral gear or pinion E, the stopping arm F, and the stop shoulder H, as applied to the bolt and within the case thereof, and so as to operate together and actuate the bolt.

No. 15,857.—Owen Redmond.—*Improved Sash Lock.*—Patented October 7, 1856.

The weight of the slide S causes the inclined plane *d* to act on arm *e* of bolt B, and to project the tongue *f*, while the incline *i* securely fastens the said bolt, as shown in fig. 1. The raising of slide S causes arm *m* of said slide to lift arm *e* of the bolt and to draw the tongue *f* within the case.

Claim.—The swinging bolt B, in combination with the slide S and case O, constructed, arranged, and operating as described, so that the gravity of the slide shall shoot the bolt and maintain it in position.

No. 15,939.—Walter Worthen.—*Improved Balance and Fastener for Window Sash.*—Patented October 21, 1856.

The outward pressure on the projection on the spring C against the side of the window frame keeps the sash B balanced in any desired elevation. When the lower sash is pressed entirely down, the spring

C will catch on to and hold the sash by the pin K in the window frame; and when it is desired to raise the window sash the finger should be placed against the under side of lever D, pressing it upward, so that it will both disconnect the spring or fastener from the pin K, and raise the window, as may be desired.

Claim.—Balancing and fastening window sash, both by one spring, constructed, arranged, and operated essentially in the manner and for the purposes set forth.

No. 15,700.—JAMES W. LYON.—*Improved Screw Cutter.*—Patented September 9, 1856.

The wire W being inserted in the orifice of the box H, so that the end of it rests against the face of the stock K, the cutter B is projected by means of the handle of lever C, and the blank is reduced to the size of the screw to be cut, when the chisel is arrested by gauge screw G coming in contact with stop g^2. The shank of the screw is now forced into the die K, which cuts the thread upon it; and the finished screw comes in contact with screw P in clamp M, which then causes the die stock K to open and to drop the finished screw.

Claim.—The use of the slide rest, slide cutter tool, wire holder box, and spring clamp dies, or their equivalents, constructed and combined, for the purpose of cutting and finishing screws, as set forth.

No. 15,932.—JOHN MOORE.—*Improved Screw Machine.*—Patented October 21, 1856.

The dies K can be forced to the blank or released from it by operating the lever T, which on being lifted will strike the catch V on the top of bar P; by this movement the links N are turned on their fulcra and throw the dies K open, and set the bolt to be cut free.

The inventor says: I do not claim the peculiar shape of that part of the body which is semi-circular; that is not new. I do not claim the vibrating motion of the die-chuck; that is old. I do not claim the peculiar shape of the dies.

But I *claim* operating the cutters in the die-box by means of the links N, the internal and external plates, as described in connexion with the bar P, the arc 2, the lever T, and set bolts W, in the manner and for the purpose set forth.

No. 14,041.—CULLEN WHIPPLE, assignor to the NEW ENGLAND SCREW COMPANY OF PROVIDENCE.—*Improvement in Screw Machines.*—Patented January 1, 1856.

On one side of disc B a series of equidistant radial grooves *a* are formed to receive the screw blanks; a ratchet-wheel E is fixed on the same shaft, which carries the disc B, whose teeth are equidistant and correspond in number with the grooves *a*. The ratchet-wheel is actu-

ated at intervals by means of pawl F. The plate J is supported by a bracket K bolted to the frame; the side of the plate J next to the disc is smooth and at unequal distances from the face of the disc, so that it inclines towards the same. The approximation of the griping plate J, gradually forces the screw blanks into their respective grooves, until the pressure is sufficient to hold them firmly during the operation of nicking, which is done by means of the circular saw M. The saw M is made to approach to and recede from the screw blanks during the process of nicking by being mounted upon a shaft N, which rotates in journal-boxes, in cylindrical blocks P which are eccentric to its axis. The blocks P rest in cavities in the standards Q, both united by a yoke R, which latter is vibrated by means of cams H, and thus impart to the saw a reciprocating motion during the process of cutting.

Claim.—The combination of a series of grooves in a moving surface with a smooth guard and griping plate, operating substantially as described.

Also the nicking-saw, mounted on the oscillating eccentric bearings resting in cylindrical boxes, in combination with mechanism for presenting and holding the blank as herein described.

No. 15,052.—CULLEN WHIPPLE, assignor to the NEW ENGLAND SCREW COMPANY.—*Improvement in Making Screws.*—Patented June 3, 1856.

The arm H attached to the ratchet G is vibrated within the link i by means of rod J, treadle K, and cam L. At each advance movement of the ratchet hand G, one of the grooves *c* in the periphery of the frustrum is brought opposite the mouth of the inclined slot a^1, receiving a screw blank, which will be prevented from falling out of the groove by means of a guard plate M, extending round the frustrum far enough to bring the blanks to the desired point of delivery.

Claim.—The combination of the feeding slot $a\ a^1$, moving series of discharging grooves *c*, and guard-plate M; but I make no claim to either of those elements of the combination by itself.

No. 14,367.—EUGENE J. POST.—*Improvement in Scythe Rifles.*—Patented March 4, 1856.

The object of this improvement is to cause the rifle to retain the emery or sand with greater tenacity than those made in the ordinary way, and thus to make them more durable.

Claim.—Corrugating the surfaces *a* of scythe rifles substantially in the manner and for the purposes herein set forth.

No. 16,290.—LEVI SKEELS.—*Improvement in Tinners' Shears.*—Patented December 23, 1856.

In getting out straight work, the hinged bench *e f g* is let down to a horizontal position, and the tin is clamped between bar *f* and set screw

, and trimmed by means of shears *c d*. For getting out round work, he treadle *h* is connected with carriage *j k* by means of arms and evers *s t u v* in such a way that the advance of the clamping disks *n o* eeps exact pace with the point of intersection of the shears *c d;* so hat the outer edge of the tin being held fast by the shears, the clamp *o*, in the act of travelling forward, causes the piece of tin to rotate ike a wheel, resulting in the separation of a perfect circle.

The inventor says: I do not confine myself to the precise arrangement described, but propose to make such modifications as experience nay suggest.

I *claim*, 1st. The rotary and sliding clamp *n o p q r*, in the described ombination, with the straight shears *c d*, for the cutting of circular orms as explained.

2d. The arrangement and combination of the hinged bench *e f g* 2 4 vith the fixed bench or frame *b b*^{1} and with the shears *c d*, for the purposes set forth.

No. 16,038.—DAVID M. LAWRENCE.—*Improved Shutter-Fastener.*—Patented November 4, 1856.

The lock plate D is pivoted between the inner half of the lower inge of a shutter B and the side of the window frame A by means of he hinge screw *f*. The semi-circular flange of the lock plate D is rovided with notches, which embrace the upper edge of the hinge, nd thus hold the shutter in any desired position, the spring stop E ressing from below against the thumb piece. By pressing down the humb piece the lock plate can be disengaged from the hinge.

Claim.—A lock plate D, when constructed with a semi-circular ange, having a series of notches cut therein, in combination with the pring stop E and hinge C, the whole being arranged substantially as nd for the purposes described.

No. 15,064.—HIRAM COLLINS.—*Improved Shutter Operator.*—Patented June 10, 1856.

By turning the rod C at the inner side of the stile, the lower bent ortion *e* of the rod will actuate the shutter and cause it to open or lose according to the direction in which the rod is turned.

Claim.—Opening and closing the blind or shutter B by means of the nclined or oblique rod C, which passes through the stile of the casing, nd has its lower or outer end bent and fitted within a socket *b* ttached to the lower part of the shutter or blind, the rod and blind eing secured at desired points by means of pin *g* in the knob D.

No. 15,287.—CHARLES R. EDWARDS.—*Improved Shutter Operator.*—Patented July 8, 1856.

Fig. 1 represents the shape of the hinge fastened as a corner butt to he window-casing by means of screws A A. The cog-wheel and butt

i (fig. 3) are cast in one piece to be fastened to the blind. The socket *k* (fig. 3) is to be slipped on the gudgeon *l* (fig. 1). The shaft in fig. 3 from *m* to H is passed through a hole in the casing, and the gudgeon *g* of said shaft entered in the socket *d*. By inserting the forked end *p* of the key S (fig. 4) into the forked end *m*, the latter shaft, together with screw F, can be turned, and the screw F meshing into the cog-wheel will turn the latter and the blind. The end E of the piece represented in fig. 5 is entered through the square hole in fig. 1, so that its cavity B will form one side of the cavity B B, (fig. 1,) and that the edges *s* meet, and *c c* will form a half socket to support the shaft H. The piece E will be held to its place by a catch *o*. The projection on the outer cylindrical edge of the cog-wheel shown at E, (fig. 3,) is for the purpose of conducting the water, and in combination with the piece (fig. 5) to protect both screw and cogs from ice. The manner of operating the lattice, by this same arrangement, can be understood by reference to the claim.

Claim.—1st. The portable male crank fig. 4, as constructed and operated with the screw shaft, with the combination and for the purposes described.

2d. The piece fig. 5, and the thin projection as shown at E E fig. 3 on the outer cylindrical edge of the cog-wheel, as and for the purpose described.

3d. Operating the screw in the combination described by use of the knob crank fig. 4 for the purpose of operating the lever *b e* fig. 2, while the lever is in contact at *e* with the head of a screw (or its substitute) in the casing at *a* fig. 2, for the purpose of operating the lattice as described.

No. 15,416.—JAMES R. CREIGHTON.—*Improved Shutter Operator.*—Patented July 29, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The attachment of the serrated tumbler catch T to the slide Q, said catch meshing or interlocking with a similarly serrated or toothed surface opposed R, on the side of the slide-box or frame E, in combination with the square extension rod U and guides S S^1; by which the operator is enabled to operate the outside blinds or shutters of a house from the inside of the same, and to secure said blinds or shutters in any required position without the liability of their dislodgment from the outside, unless by the exercise of unusual violence.

No. 15,094.—PHILIP WARNER.—*Improved Bolt for Shutters.*—Patented June 10, 1856.

The nature of this invention consists in the construction of a window-shutter bolt mortised into the shutter, and presenting a finished plate in front.

The inventor says. I do not claim a bolt as attached to a plate by

clips, with a flanged plate catch; but I *claim* two corresponding silver-plated metal flanged plates B, in combination with a silver-plated knob D attached to an inside bolt E, having on the reverse, or inside of the plates, corresponding clips G, in which the bolt operates: said bolt and clips to be fitted to a mortise in a window-shutter, for the purpose of presenting a neat silver plate on each shutter to hide the bolt, and completely protect it from the weather.

No. 14,912.—JOHN GUNNER, jr.—*Improved Swing Bolt for Fastening Shutters.*—Patented May 20, 1856.

The hub C is fastened to the inside of the window frame. The hub has a slot at top (fig. 2). When the shutter is thrown open the lever drops into this slot D, and holds it back against the wall outside. In that case the pin H sits in the first hole, and the end of the lever is in the slot E. If the shutter is to be but partially open, the pin H is dropped into one of the other holes F.

Claim.—The use of the bolt lever A and hub *c*, in connexion with the catch-plate B, when the same is cast with a channel E.

No. 14,563.—ALBERT V. HILL.—*Improvement in Slide Rests.*—Patented April 1, 1856.

The nature of this invention consists of a rest E, with a mortise at each end, through which a slide-bar K passes, which bar is driven by means of a screw C. The chisel-rest X and chisel pass through the slide-bar K. The chisel is fed by means of the screw H.

Claim.—The use of the slide-mortise K and driving-screw C, arranged and operating in connexion, as described.

No. 14,176.—DANIEL DOD, assignor to Himself and HENRY F. READ.—*Improved Soldering Iron.*—Patented January 29, 1856.

The soldering bit *a* is constructed hollow, so that a movable core *b* can be heated and inserted into it, thereby avoiding the necessity of heating the bit by direct contact with the fire.

The inventor says: I do not claim the iron handle or copper bit, nor any particular external form of soldering irons, nor the general application of heated centres, as used in embossing irons or rollers, crimping irons, curling tongs, and hatters' irons, as they have been known and used previous to my invention.

But I *claim* the combination of a hollow bit of copper with movable centres of iron, in the construction of soldering irons, as described in the foregoing specification.

No. 14,573.—ASAHEL PIERPONT.—*Improvement in Soldering Wire Ferrules.*—Patented April 1, 1856.

Fig. 1 represents one of the jaws *a*; they are attached to the frame of the machine by screws passing through slots. The parts *c c* of the

jaws are pressed against the conical end of rod A, by means of the springs *b b*. (One of the jaws is removed in the figure, to show the cone.) The rod A receives a longitudinal motion from the knuckle joint B, by means of lever C, in order to expand the jaws *c c c c*, and to bring the ferrule into exact form. The wire is held steady by the four-pronged fork D together with the rod E and spring *e*.

Claim.—The employment of the jaws *c c c c* with the cone *d* and fork D, or their equivalents, when the whole is constructed, combined, and made to produce the result as herein described.

No. 15,928.—C. A. McPHETRIDGE.—*Improved Spike Machine.*—Patented October 21, 1556.

The iron rod is fed to the machine by means of the feed-rollers P, whence it passes in between the dies M and m^1, which point and cut the blank, whence it is fed to the conducting arms C, which revolve around the shaft 3; as the blank comes in contact with the projection H, its upper end is bent, and arriving under the heading-tool N the head is formed as the lever B is caused to oscillate on its fulcrum 6, by a crank operating pitman X. When this operation is performed the conducting arms are turned one eighth of a revolution as the action of the pin 4 on pinion D^1 raises the spring lever in slot 5, and thus the same operation as described is repeated.

Claim.—The conducting arms C C as constructed, when operating in connexion with the means employed for cutting, pointing, heading, and clearing, and the closing guide E F, as described.

Also the use of the feed-rollers P P, the ratchet-wheel V, bar C, pinion K, pawl O, in connexion with the wheels D D, and the pin 4, when constructed and operated in the manner and for the purpose set forth.

No. 15,468.—MOODY BELKNAP.—*Improvement in Spike Machines.*—Patented August 5, 1856.

The cutting apparatus of this machine is composed of a stationary head block C, provided with a vertical cutting edge *e*, in conjunction with which a movable cutter D is operated. The knife D, as it advances towards the stationary knife *e*, makes a cut in a slanting direction through the spike-rod. The movable knife D, represented at fig. 2, is provided with a recess *f* arranged in advance of the cutting edge, the vertical height of which recess should be made equal to the vertical depth of the spike rod, so that when the knife is severing a blank from the rod the spike rod shall be embraced both on its upper and lower sides at its end where the cut is made, so as to prevent the said end from which the blank is taken from being upset or formed with projecting fins.

Claim.—The improvement of making the movable knife D with a rectangular recess *f*, for the purpose and to operate substantially in manner explained.

No. 14,088.—ELISHA H. COLLIER.—*Improvement in Heading Spikes.*—Patented January 15, 1856.

After the pointed blanks are fed into one set of die-holes and headed, the die-plate *a* is reversed and the other set of die-holes filled with blanks which are headed in a similar manner; the blanks first headed in the mean time dropping out of the die-holes by their own weight as fast as they shrink sufficiently by cooling.

Claim.—Hanging the die-plate or anvil *a* upon centres or bearings in such a manner that it can be reversed or its under face brought uppermost; the said die-plate or anvil being provided with a double set of die-holes, as described and for the purpose specified.

No. 14,566.—VINCENT D. LENT.—*Improved Former for Spiral Springs.*—Patented April 1, 1856.

The improvement in the former C consists in the two inclined planes P^1 and P^1, which contain a continuance of the groove of the former.

The contact of the spring while compressed is, by this improvement of the former, avoided.

The inventor says: I am aware that springs might be made on conic frustra of such an angle that the parts of the spring wound at right angles to the axis of such a former would not coincide so nearly with other parts of the spring that contact between them would follow compression. Springs made upon such a former, however, would have an unnecessary amount of material, and I do not claim a former so constructed; but I *claim* a former constructed with suddenly expanded ends, for the sole purpose as herein set forth.

No. 16,214.—JOHN NEVILL, mediate assignor to the DAMASCUS STEEL MANUFACTURING COMPANY.—*Improvement in Making Cast-Steel.*—Patented December 9, 1856.

Fifty pounds of malleable iron cut into small pieces, together with ten ounces of powdered charcoal half an ounce of ferro-cyanide of potassium, one ounce of sal ammoniac, and six ounces of common table salt, with one ounce of brick dust, are melted in a suitable pot, and the heat maintained for three hours, when the contents are poured off into iron moulds in the ordinary manner of pouring cast steel.

Claim.—The described process for converting wrought iron into cast steel, consisting essentially in the use of the various compounds of cyanogen and sal ammoniac, either separately or in combination with each other, or with other ingredients, when mixed and fused with the wrought iron which is to be thus converted.

No. 14,976.—FRANZ UCHATIUS.—*Improvement in Making Steel.*—Patented May 27, 1856. Austria, March 14, 1855.

Claim.—The conversion of pig iron into steel by subjecting the same, when reduced to a granulated state, to the combined action of oxidizing

agents and the requisite fluxes, whereby I am enabled to manufacture cast-steel of a determinate quality, and obtain it at one melting.

No. 14,435.—HOMER ANDERSON.—*Improvement in Welding Steel.*—Patented March 18, 1856.

The compound consists of equal parts of sulphate of soda and carbonate of soda.

Claim.—The compound of sulphate of soda and carbonate of soda, made up and used for welding metal surfaces, as herein set forth.

No. 16,151.—HARLEY STONE and MASON D. COLE.—*Improvement in Expanding Tap.*—Patented December 2, 1856.

On turning the rod G one way, it moves the nut I, the ends of which following the spiral grooves turn it, and thus turn the cam piece J, and the cam surfaces force out the cutters S. When the rod G is turned the other way, the nut takes the reverse direction, carrying the cam piece, whose collars draw in the cutters by their lips; whilst to use the whole, the force is applied to A by its square part, which operates the cutters without expanding them.

The inventors say: We do not claim making expanding tools, by means of cam surfaces, irrespective of form and arrangement.

But we *claim* the arrangement of the cam piece J, the nut I, and screw G, and their connexion with the cutters and case A, when constructed and operating as set forth.

No. 15,195.—CHARLES R. SOULE.—*Improved Machine for Making Rake Teeth.*—Patented June 24, 1856.

The wires of which the teeth are formed are cut of the proper length and are placed one at a time upon the grooved plate *g* and step *i*. The lever I is then depressed by the attendant, the pulley D is rotated, and the pin *p* will strike against the catch *n*, and the arm G and shaft C will be rotated with the pulley D. The projection *a*, at the end of shaft C, will bend the wire and cause it to coil around the end of said shaft, and the upper part of the frame E will be gradually moved out from the frame A in consequence of the wire being wound around the shaft. As the upper part of frame E moves outward, the rod *l* will be shoved outward beyond the platform B; and when these coils of the wire have been formed on the shaft C, the rod *l* will be sufficiently beyond the edge of the bed for the longer arm *u* of lever H to catch against it; the pin *p* will, consequently, slip past the catch *n*, and the pulley will rotate while the shaft C remains stationary. When this takes place, the elasticity of the rake-tooth, caused by the coil of the wire upon the shaft C, will throw up the arm G, and the arm *u* will catch upon the upper end of the spring *t*; the wire or rake-tooth is then removed from C.

laim.—The shaft C, with loose pulley D and G and projection *a* ched, and used in connexion with the frame E and lever F, with *b* attached, and the lever I connected with arm *s*, having the spring ached; the arm G having the lever H secured to its end.

16,213.—JOSEPH NASON.—*Improvement in Connecting Tubes.*—atented December 9, 1856.

he nature of this invention will be understood by reference to the n and engraving.

he inventor says: Several modes of joining the ends of straight llel tubes to their cross connexions have been hitherto employed, are well known. In some cases the ends have all been threaded screwed into the cross. They have also been joined with ordinary et joints, and made tight with cement or with flanges and bolts, sometimes the cross tubes have been cast upon them.

do not claim these modes, none of them being applicable to the cts contemplated in my invention. I *claim* the mode, specifically ribed, of joining the straight parallel tubes *a a* and *b b* to the cross s A and B by means of screws and plain cylindrical joints upon ubes *a a* and screws upon both ends of the tubes *b b*, whereby the s *b b* are made to hold the cross tubes A and B firmly in position, the cylindrical ends of the tubes *a a* are left free to adjust themes in their openings during the process of entering and screwing up ubes *b b*, and afterwards when expanding unequally.

14,603.—ORLANDO V. FLOREY.—*Improved Vise.*—Patented April 8, 56.

he nature of this invention consists in the employment of a brace tending from the lower end of the movable jaw C to a ratch H, nged in such a manner that the weight of the brace will disengage om the ratch when the jaws are not tightened against any article.

laim.—The use of the rachet brace G operating in connecting with ratch H sliding beam D, and movable jaw C, substantially in the ner herein set forth.

14,795.—CHARLES BUSS.—*Improved Vise.*—Patented May 6, 1856.

he nature of this invention will be understood from the claims and ngraving.

laim.—Making the movable jaws A A, with the parts B B, exing beyond the joints, so as to be operated by the wedge G, or its valent.

I. I claim making both jaws movable, so as to open equally and the various sizes on a line with the centre of the whole tool.

No. 15,051.—SAMUEL FAHRNEY, assignor to ABRAHAM HUFFER and BENJAMIN FAHRNEY.—*Improved Vise.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The use of the sectors D D, in combination with the studs G, for the purpose of rendering the jaws of the vise parallel to each other.

No. 15,170.—HORACE B. CHAFFEE.—*Improved Vise.*—Patented June 24, 1856.

This improvement obviates the necessity of adjusting the stop by hand, as the stop is self-acting, the supplementary jaw E throwing the pawl F into the rack D at the proper time, and the weight G throwing the pawl from the rack when the jaw E is relieved from pressure.

Claim.—The supplementary jaw E pivoted to the stationary jaw A of the vice, and connected with the weighted pawl F, substantially as shown, for the purpose set forth.

No. 15,277.—HIRAM C. BROWN.—*Improved Vise.*—Patented July 8, 1856.

The nature of this invention can be understood by reference to the claims and illustration.

Claim.—1. The rod M, arranged and operated so that by pushing it endwise both ends will be simultaneously raised, and thereby lift the pawl *a* from any part of the ratch.

2. Adjusting and retaining the jaws parallel with each other, or to any desired angle, either by varying the length of the brace-rod at *e* between its points of contact at the top and on the movable jaw, or by varying the position of the lower point of contact at *m*, substantially in the manner described.

3. The use of the adjustable sliding-rod H, arranged and operating in connexion with the brace-rod I, substantially in the manner and for the purposes herein set forth.

No. 15,583.—R. W. THICKINS.—*Improved Vise.*—Patented August 19, 1856.

By turning the collar H so that its major diameter will be in line with the major diameter of the cap F and recess e^1, as represented in fig. 2, the springs *f* will force apart the two parts of the nut G, and the screw C will be freed from the nut, and the screw C and jaw B may be moved back and forth bodily; but when the collar H is turned so that its major diameter crosses the major diameters of the cap F and recess *e*, the two parts of the nut G will be forced together, and will grasp the screw C, as represented in fig. 3.

The inventor says: I do not claim the cross levers or bars E E separately, for they have been previously used; but I *claim* the combination of the levers or bars E E and slotted arm D arranged and applied to the jaws A B, as shown, for the purpose specified.

No. 15,862.—CALEB C. WALWORTH.—*Improved Vise.*—Patented October 7, 1856.

The jaws D of the two vises can be operated independently by means of the right-and-left screw E, operated by a lever F, and the vise can be turned around its centre shaft by means of lever G, and can be secured in a fixed position by inserting said lever into one of the notches H.

Claim.—The arrangement of two vises so as to revolve about a common centre, and locking the same in any desired position by means of the lever G and notches, or any other suitable device, substantially in the manner and for the purpose set forth.

No. 14,192.—SAMUEL GISSINGER.—*Improved Bench Vise.*—Patented February 5, 1856.

The links M N and arm L hold the wedge H up between the limbs A B and slide F, and the projection G and the butt of the wedge are kept face to face by the superior weight of the descending projection K; and the projection G being in the same vertical plane as to its face with the face of the fixed jaw C, the parallelism and practical operation of the wedge is thereby secured, and thereby the parallelism of the vise preserved during all motions of screw E.

Claim.—The projection G and the projections I and K, arranged as described and for the purposes set forth.

No. 14,550.—BENJAMIN G. BALL.—*Improved Bench Vise.*—Patented April 1, 1856.

A is the stationary jaw and B the movable jaw. The rotary shaft C is kept from moving otherwise in relation to jaw B, then turning by the pin *d* and groove *b*. The tubular connexion block F has a helical screw *f* on its periphery, which receives a projection *g* from the side of the chamber E. In order to fasten an article between the jaws, the shaft C is turned a little so as not only to clutch to the screw connexion block by means of the rack K and stud L, but to rotate said shank a little. By the rotary movement of the block and by the action of its stationary screw-thread projection, the movable jaw will be drawn closer up to the article placed between its two jaws.

Claim.—Combining with the rotary shaft C, and the shanks of the jaws A and B, the tubular screw connexion, and the clutch as described, when a rotary shaft is made to actuate the jaws, the whole being constructed and made to operate substantially in manner and for the purpose as above set forth.

No. 14,366.—JOHN T. OGDEN.—*Improvement in Handle for Vise.*—Patented March 4, 1856.

The nature of this improvement will be understood by reference to the engravings.

Claim.—Uniting the vise handle H with the head I of the screw D, by means of the service joint *f g*, operating in the manner substantially as herein set forth.

No. 15,705.—F. Norette.—*Improvement in Cutting and Drawing Wire.*—Patented September 9, 1856.

Motion being given to the shaft C, the two cutters H and L will be rotated by gearing, and said cutters will cut a strip off from the plate M, the roller *h* being so adjusted that the strip may be of the required width, and the edge of the plate being kept against the roller *h* by weighted lever V, pawl and ratchet G U, racks O O, and shaft Q with pinions *e* upon it, which pinions gear into said racks, the strip being cut spirally from the periphery to the centre of said plate M. The wire is wound upon drum I^1, to which a vertical vibratory movement is imparted by means of the right and left screw rods *l l*, with pinions *m* attached and made to gear alternately into pinion *k* on the shaft A^1 by means of the block B^1, lever D^1, bar G^1, and weighted lever H^1. The wire is removed from the drum I^1 by raising the upper dis *r*, allowing the staves *t* to incline inward.

Claim.—1st. Feeding the circular plate M to the circular cutters H L, and gauging the same by means of racks *o o*, shaft Q, with pinions attached, the pawl and ratchet G U, weighted lever V, or equivalents, and gauge roller arranged as shown and described.

2d. Operating the reel or drum I^1 or giving it a vertical vibratory movement by means of the right and left screw rods 1 1, with pinions *m m* attached, and made to gear alternately into the pinion K on the shaft A^1, by means of the block B^1, lever D^1, bar G^1, and weighted lever H^1, arranged as shown and described.

3d. The reel or drum I, when constructed as shown, so that it may be compressed or contracted to allow of the ready removal of the wire from its periphery.

No. 14,751.—Thomas D. Burk, assignor to James Garrett.—*Improved Device to allow for Contraction and Expansion in Wire Fences.*—Patented April 22, 1856.

This arrangement allows the wire to yield to pressure from cattle or any other object.

Claim.—The application of the key C, the lever D, the weight E, and the stay G to a wire fence.

No. 16,252.—Thaddeus F. St. John.—*Improved Machine for Wiring Blind-Rods.*—Patented December 16, 1856.

The operation of this machine is as follows: Motion being given to the shaft G^1, a reciprocating motion is imparted to bar G, and cross-head *o*. The wire E is drawn along a certain distance at each forward move-

ment of the bar G by the dog *d*, the wire being clamped between dog *d* and arm *e*. As soon as the wire is fed through the guide plate O the length of the stroke of dog *d*, the lever A^1 is actuated by the friction roller b^1 and frees the spring-catch L from the pin *n* and allows the spring K to throw the cutter *k* against the wire and knife 2, and a piece of wire is cut of the requisite length to form a staple. This piece of wire when cut off is directly over the hook *s* at the lower end of lever *q*; and as soon as it is cut off, the hook and bars *p* rise and the hook draws the piece of wire upwards between the curved ends of bars 1 and the wire is bent in the form of a staple, one leg being longer than the other. When the hook *s* reaches the ends of the bars 1, the projection g^1 throws the hook and staple within a recess in the lower ends of the bars, and the hook is retained therein by the spring catch *v*. The bars *p* then descend and force the staple into the rod W, the long leg of the staple passing entirely through the rod. As the bars *p* ascend to form the staple, the dog *d* moves backwards, and the arm or lever J is thrown outward in consequence of the friction roller *m* on the projection *l*, and is caught by the spring catch L.

Claim.—1st. The device formed of the reciprocating bars *p p* provided with the lever *q* having hook *s* at its lower end, the bars 1 1 attached to the uprights M M, the lever *q* being operated substantially as shown; by which device the staples are properly formed, and, when formed, driven or forced into the rods or slots.

2d. The combination of the reciprocating bars *p p*, lever *q*, and arm or lever J, with cutter K attached, the reciprocating bar G, with dog *d* and arm *e* attached, and the cam S, the whole being arranged and operating conjointly, as described, for the purpose specified.

No. 14,249.—ELISHA P. NEWTON.—*Improved Wrench.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I wish to be understood as not claiming the toothed shank; but I *claim* the arrangement of a semi-screw thread C cut or counter sunk in the shank and the semi-screw threaded stop or catch E for working them, by which means finer threads may be used, and the movable jaw be brought close up to the nut, and the stop or catch removed out of the way of the action of the wrench, they being arranged and operating in the manner as herein described and shown.

No. 14,221.—WILLIAM BAXTER.—*Improved Wrench.*—Patented February 12, 1856.

The two plates A A of the wrench slide upon each other whenever the screw *d* is operated so as to open or close the large and the small jaws simultaneously.

Claim.—Adjusting and securing the jaws *c c* of a diagonal wrench by means of the screw *d* and joints *f g*, as described.

No. 14,243.—FERDINAND KEEHNOLD.—*Improved Wrench.*—Patented February 12, 1856.

The cross-bar C forms the gauge for the jaw D, which latter is fitted on to C, and is to be moved through eccentric E.

Claim.—The jaw D and lever H, as constructed, operating in connexion with the rachet-bar C, in the manner set forth.

No. 14.424.—ERASTUS TRACY.—*Improved Wrench.*—Patented March 11, 1856.

n is a spiral spring. The nature and operation of this improvement will be understood without further description.

The inventor says: I am aware an auxiliary jaw or griper, applied to or inserted within either the movable or stationary jaw of a screw-wrench, has been used. This I do not claim, being too expensive in construction and inefficient in its operation to come into general use.'

I *claim* making the movable jaw in two sections, pivoted together; one of which sections embraces the shank and the other forms the clutch, by which the whole jaw is held to the shank, and both sections made, united, and operating in the manner and for the purpose set forth.

No. 14,779.—BRADFORD ROWE.—*Improved Wrench.*—Patented April 29, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The solid movable jaw D^1 sliding between the parallel side pieces B and C to which the fixed end jaw A is attached.

I claim the bevel-wheel *p* and screw-gearing E to move the jaw D, in combination with the solid movable jaw D^1.

No. 15,482.—LORENZO D. GILMAN.—*Improved Wrench.*—Patented August 5, 1856.

The two jaws E pass through a slot C in the circular toothed plate A, revolving in a ring 4 which is attached to the handle G; the jaws are adjustable by means of the nut 9 on screw 8, which latter is provided with a right-and-left-hand screw-thread, and thus the jaws are made to slide in the slot in opposite directions. The pawl H on handle G is held in any desired position by means of finger I and spring *f*; and by inserting one of the forks between the teeth of the plate A, said plate is fixed to the handle and prevented from turning.

The inventor says: I do not claim inserting a forked piece of metal, with a square shank upon one end, in the square slot of the axis of the wrench and supported by a nut; neither do I claim the teeth on the axis; neither do I claim the pad: those having been used prior to my having any knowledge of wrenches.

n the use of adjustable jaws E E, as described, moving in the , and operated in connexion with the groove in the jaws, form- djustable socket, in the manner set forth.

184.—GUSTAVUS A. JENKS.—*Improved Wrench for Gas-pipe*, Patented June 24, 1856.

nventor says: I do not claim the pipe tongs with a curved : jaw affixed by a pin to a handle having a stationary jaw and ided with a screw adjustment; and furthermore, I do not claim bination as patented by Bartholomew and Merrick, and of ıy invention is an improvement.

claim arranging the hook or claw G and the spring E, with to the slide C and the main bar A, and hinging or jointing the rectly to the slide C.

546.—HALSEY D. WALCOTT, assignor to himself and MILTON ALCOTT.—*Improvement in Wrenches.*—Patented March 25, 1856.

a cylindrical chamber, to which is fitted the core F; C is a ıugh the wrench, the back side *i* of which is inclined. *d* is a pin ; pressed against *i* and F by the spring *f*; *g* is a hole to receive

When the handle is moved in the direction of the arrow, the nains stationary; and when the handle is moved in a contrary n, the pin *d* is pressed between the core and the side *c*, and the forced to move with the handle.

ı.—The core F, pin *d*, spring *f*, and inclined-bearing *i*, operating exion with the handle C, as herein set forth.

528.—WILLIAM WARWICK.—*Improvement in Wrenches.*—Pat- l March 25, 1856.

spring *b* of the pawl D is inserted into a cut at the upper end ɔawl and there secured by a pin C. The teeth *f f* of the pawl o the teeth *d d*, while the spring *b* bears against the smooth

not claim the rack, nor do I claim the applying of the spring s those devices have been used before, and are well known.

[*claim* providing the shank A with a recess, whose one side *d d* ed, and the other *e e* is smooth, in combination with a pawl D in said recess on the inside of the sliding jaw C, in the man stantially as described.

571.—PHILIP MCMANUS.—*Improvement in Wrenches.*—Patented l 1, 1856.

spring G keeps the rack F free from the rack *a*; but, by turning n or eccentric H, the spring G and rack F will be forced inward k F catching into the rack *a*, and thereby securing the jaw D

The inventor says: I do not claim separately a cam or eccentric for holding or securing the sliding jaw at desired points.

But I *claim*, 1st, the cam or eccentric H attached to the sleeve E, and the rack F attached to the sleeve by a spring G, in combination with the rack *a* on the shank B; the above parts being arranged as shown and described, for the purpose specified.

2d. In combination with the cam or eccentric H and racks F *a*, the finger piece A^1, as described.

No. 16,158.—ORIN O. WITHERELL.—*Improvement in Wrenches.*—Patented December 2, 1856.

By forcing the handle A to the left, the eccentric end of the handle will be caused to bite upon the movable jaw at *b*, and thereby firmly to confine said jaw in the slot. By turning the handle to the right the jaw E is released, and can be adjusted at pleasure.

Claim.—Attaching the fixed jaw B of the wrench to a handle, which has its extremity made eccentric by a fulcrum pin D, and arranging the movable jaw relatively to said end of the handle and to the fixed jaw, substantially as and for the purpose set forth.

III.—FIBROUS AND TEXTILE.

No. 14,322.—JAMES S. MCCURDY.—*Improvement in Binding Guide.*—Patented February 26, 1856.

The apparatus is secured to a sewing machine by screw *h*; one end of the binding E is then placed between the jaws of the receiving guide D, and is then drawn forward through the lips *b b*, one edge of the binding being held by the upper and the other edge by the lower lip, while its back edge rests against the spring *d*. The eccentric C is then turned so as to bring its edge in contact with the back edge of the binding without crowding it forward too far. The edge of the material to be bound is now placed between the lips *b b*, and crowded back against spring *d* and eccentric C; the needle then passes down immediately in front of and close to the ends of the lips *b b*, from which the binding is discharged, &c.

Claim.—The centre piece in combination with the plates A and B, arranged and operating substantially as set forth; for the purpose of adjusting the binder for the use of binding of different widths, and applying the same with unequal lap to the material bound.

No. 15,836.—JAMES WALLACE.—*Improved use of the Dash-Wheel for Washing and Bleaching.*—Patented September 30, 1856 —England June 26, 1855.

The articles to be washed are passed through the openings K which can be closed by lids L, and are placed into the compartments B of the

dash-wheel, and as the wheel is rotated on the hollow shaft D, steam enters through said shaft and passes through the perforations of said shaft into the square box I, and thence through a series of other perforations into the compartments B. The hollow shaft D also communicates with a retort for the admission of chemical ingredients into the dash-wheel, and thus the articles to be washed are operated upon by the combined action of steam and chemical ingredients.

The inventor says: I disclaim having invented the principle of bleaching or washing by the combination of mechanical agitation simultaneously with chemical action.

But I *claim* the use of the dash-wheel, substantially as described, in connexion with the use of the chemical ingredients and steam, for the purpose of bleaching, washing, or cleansing textile fabrics and other materials, as described.

No. 15,872.—Otis Avery.—*Improvement in Guides for Working Button-Holes.*—Patented October 14, 1856.

The nature of this invention consists in attaching to a clasp *a*, which embraces the cloth in which the button-hole is to be made, an instrument for catching the thread and twisting the loop of the same, so as to make the button-hole stitch, said intrument consisting of a tube *b*, in which the tweezers *c* are caused to revolve by having a pin on the outside, sliding in a spiral groove of the tube *b;* the tweezers move transversely to the movement of the sliding plate, and are capable of being slid or extended out over the edge of the clasp to catch the thread, and on drawing them back their rotary motion gives the thread the proper loop to make the button-hole stitch.

The inventor says: I do not confine myself to the use of the spiral groove in the tube to give a rotary motion to the tweezers, as that motion may be given by making a twist or screw to the tweezers, or they may be revolved by the thumb while in the act of moving the tweezers back and forth to catch the thread.

I *claim* the combination of the sliding plate with the revolving tweezers, operating and arranged substantially in the manner and for the purpose set forth.

No. 16,319.—John Worsley.—*Improvement in Manufacturing Calender Rolls.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I disclaim the manner or form of making the rollers, for that has long been in practice by manufacturers of other rolls.

I *claim* the use and employment of the husks of maize (Indian corn) for making rolls, instead of cotton, wood, paper, or any other substance now in use.

No. 15,781.—A. D. SHATTUCK.—*Improvement in Carding Engines.*—Patented September 23, 1856.

The cylinders B and C cannot revolve with a velocity less than that due to the motion of the band D; either of them may, however, revolve with a greater velocity. If the band H passes around the large end of the cone G and the smaller end of the cone F, the cylinder C will then turn with its minimum velocity, being driven by band D, and the cylinder B will be driven at a more rapid rate by the band H. The cylinder B now takes the cotton off from the main cylinder A, and at the same time strips the working cylinder O. The cotton taken off by cylinder B is carded on to the cylinder C, which now acts as a doffer to B; and as C runs slower than A, it is stripped by the latter, and thus A O and C are stripped. As the band H is traversed towards the machine, the cylinder B by a similar combination of motion is stripped by A, though it continues to strip the worker O. The main cylinder is now stripped by the cylinder C, which is doffed by the cylinder P, which, in its turn, is stripped by the main cylinder.

Claim.—The application to the main cylinder of carding-engines of two or more variable cylinders, in combination with a doffer, operating in the manner and for the purpose substantially as set forth.

No. 15,784.—A. D. SHATTUCK.—*Improvement in Carding Engines.*—Patented September 23, 1856.

This invention consists in the use of a stripper or clearer B to the main cylinder A, in connexion with the doffer C, which is itself, in turn, stripped by the main cylinder; by which means the cotton is all taken off the latter and is immediately returned thereto—the operation being continuous, and neither requiring the card to be stopped, nor causing any break or interruption in the lap.

Claim.—The stripper B, in combination with the doffer C, and with the main cylinder of a carding-engine, operating in the manner substantially as set forth.

No. 16,196.—WILLIAM H. WALTON.—*Improvement in Cleaning the Top Flats of Carding Machines.*—Patented December 9, 1856.

When the arms K sweep forward, the brush *l*, which is in rapid revolution, brushes over and cleans the side of the workers *h* that is uppermost, the brush being in turn cleaned by the revolving card cylinder *m*, whence the fibres are conveyed to the cylinder *e* and are reconveyed to the cylinder *f*. As the arms *k* move forward, a projecting piece k^1 strikes the workers *h* and raises them from their bed; and the piece k^1 on one side being cogged, takes into the pinions on their journals, and causes each to make a semi-revolution, thus bringing the working surface up to be cleaned by the action of the brush *l* which succeeds.

Claim.—Suspending the top flats or lags upon pivots in the centre of their ends, by which they can be raised out of the way of the

adjoining flats or lags, to be turned by means of a crank working in pinions upon their pivots, or the equivalent thereof; the whole being constructed and arranged substantially as described, for the purposes set forth.

Also, stripping the flats or workers by a rotating brush, so arranged that a card may, in turn, strip the brush and return the strippings to the main cylinder, substantially in the manner and for the purposes described.

No. 15,313.—HORACE WOODMAN.—*Improvement in Machinery for Cleaning the Top Flats of Carding Engines.*—Patented July 8, 1856.

The combination of the different parts mentioned in claim 1st is for the purpose of moving the cleansing frame through the space of two top cards at one complete revolution of the gears Y Y^1, and of holding it there at rest, while the lifting, stripping, and depressing machinery does its office; the movement of the cleansing frame occupying one-half of said revolution of said gears, and the holding of the frame and process of stripping a top card occupying the other half of said revolution. The nature of the other features of this invention can be understood by reference to the claims and illustrations.

Claim.—1st. The arrangement of gears Y Y^1 on the cleansing frame, and in combination therewith, in the manner substantially as described; the studs or pins J and J^1 on the inner sides of said gears, and the levers I and I^1, and the sliding-bars K and K^1, operating together with the slotted or corrugated arches or flanges R R^1.

2d. I claim the said slotted or corrugated arches, whether cast with the main frame of the card or attached thereto, as specified; and this I claim as a means of holding the cleansing frame in place while the top cards are raised, stripped, and depressed, and also as a means of regulating the reciprocating movements of said traverse or cleansing frame from one side of the card to the other, and also from one card to any other.

3d. I also claim the combination of the lever o and stripping rod g_1, with its dogs M and M^1, and sliding-clutch, arranged as described, to reverse the motion of the cleansing frame.

4th. I also claim the arrangement of waste-pan F, as described, with a narrow bar and strip of filleting attached to the front edge of the pan, so placed as to remove the waste from the cleaning-bar V, to produce a clean brush-bar for the cleaning of each top card.

No. 14,481.—GEORGE WELLMAN.—*Improvement in Stripping Top Flats of Carding Machines.*—Patented March 18, 1856.—Patented November 25, 1853, England.

A detailed description of this machine would occupy too much room to be given here.

Claim.—1st. The combination of the segmental gear L, with its projecting rim Q and the pinions O and P, with their attached notched

plate wheels; all as applied to the shafts K M and N, and for the purpose of giving the alternate intermittent movements to the shafts M and N, as specified.

2d. I claim the arrangement of the mangle pins Z^1 Z^1, &c., in the arc of a circle, upon the centre of which the frame carrying the stripping apparatus vibrates, for the purpose of avoiding intermediate gearing and consequent back lash, as specified.

3d. I claim the combination of the cams X X with the chain belt Q^1, the chain pulleys R^1, and shaft M, arranged and made to operate together, as described.

4th. The combination of the cams X X with the levers Y Y, carrying and operating the stripper card in the manner specified.

5th. The combination of the cams X X with the lifting rods Z Z and the levers Y Y, arranged and made to operate in connexion, as described.

6th. The combination of the springs F^1 F^1 and the pins E^1 E^1, and their application to the frame S, for the purpose specified.

7th. I claim a mechanism for cleaning the stripper card, arranged and applied substantially as described.

8th. I claim the segmental gear L and its rim Q, as applied and operated, for the purpose of giving motion both to the mechanism for raising, stripping, and depressing the top card, and to the mechanism for moving the raising and stripping mechanism from one top card to another—not moving both at the same time, but alternately, first one and then the other.

No. 15,016.—Foster Nowell.—*Improvement in Wool-Carding Machines.*—Patented June 3, 1856.

The belt or apron T T passes around the rolls R R, the lower part of the belt taking the form of the outside circumference of the rubbing cylinder L. In the circumference of these rolls R R is cut a groove, and on the inside of the aprons are fastened strips of leather which run in said grooves and keep the belt from vibrating. The rolls nearest to the doffer cylinders B B are adjusted so that the outside of the apron will just clear the teeth of the doffer cylinders. As the wool on the rings of card clothing of the doffer comes to the apron or the rolls R R, the apron wipes it off from the rings in the form of ribbons, and conducts it between the apron and the rubbing cylinder, when, by the vibration of the rubbing cylinders L, (by mechanism, as shown in figures 1 and 2,) they are each gathered and rolled into a round strand of roving, and afterwards ejected from between the rubbing cylinder and the apron in a condition suitable to be wound upon spools.

Claim.—The use in carding machines of two surfaces for conducting and rubbing the sliver from the ring doffers, one of which is cylindrical and of permanent form, and the other a belt or apron of flexible material, and capable of adjusting itself to the shape of the cylindrical rubber and the sliver or roving between itself and the cylindrical rubber.

No. 15,905.—JOHN L. TUTTLE.—*Improvement in Card-Teeth for Machine Cases.*—Patented October 14, 1856.

This invention consists in preparing steel wire by passing it through grooved rollers of such a form as will flatten it out on one side of its centre to a knife-edge; so that when set and a surface ground on them, the same grinding shall form the sharp points thereon.

Claim.—I am aware that R. Kitson, in his patent of November 11, 1851, represents a tooth of soft iron and of small wire, with a cross-section resembling the cross-section of my card-teeth; this I do not claim.

But I *claim* the making of card-teeth by giving to steel wire the form described, and substantially in the manner set forth; so that when set and a surface ground on them, the same grinding shall form the sharp points thereon.

No. 15,767.—DAVID B. KERR.—*Improvement in Manufacturing Ingrain Carpeting.*—Patented September 23, 1856.

The nature of this invention will be understood by reference to the claim.

The inventor says: I do not claim the invention of a party-colored carpet, nor the manufacture of a carpet composed in part of solid colored yarn, and in part of party-colored yarn, when the two are combined in a manner different from that described as my invention.

Nor do I claim any particular method of party-coloring yarn for carpets, nor the weaving of carpets in a power-loom. Nor do I limit myself to a carpet in which all the warp threads are party-colored.

But I *claim* a party-colored ingrain carpet, in which the warp threads of one or more plies are party-colored, in whole or in part, and are combined with solid colored weft threads to form the design, substantially as set forth.

No. 14,585.—JOHN R. HARRINGTON.—*Machines for Making Carpet Lining.*—Patented April 1, 1856.

Rolls of paper and wadding being placed on their respective bearings, and the troughs being supplied with gum solution, the ends of the rolls are introduced between the pressure rollers k and h, and then between the creasing rollers j and j^1, whence they descend in proper folds.

Claim.—1st. The arrangement of the horizontal spindles or rollers b and b^1, on which the outer sheets or rolls of paper or cloth d and d^1 are wound, in combination with the intermediate spindle e on which the inner layer of cotton or other filling g is wound, the whole being supported and operated in the manner and for the purposes described.

2d. The arrangement of the rolls h and h^1 in combination with the spindles b and b^1 and e, for the purposes as set forth.

3d. The troughs p and p^1, that contain the size or mucilage, and the brushes q and q^1 that administer it, when used in combination with the

spindles *b* and b^1 and *e*, the whole being arranged and operating in the manner and for the purposes as specified.

4th. The creasing rolls *j j*, when used in this connexion, each having alternate grooves *l* and ridges *k* at the requisite distance for the folds, for the purpose of folding and measuring, as described.

5th. The box or platform *m* placed below the delivery of the rolls, and having a falling front *n*, as described.

No. 16,275.—EDWARD B. HOWE.—*Improvement in Trimming Card-Clothing.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The adjustable guide and clamp R, with its adjustable tool-holder M operated thereon, and the guide-bar J for guiding the card clothing by the card teeth set therein, and the points *i* in this bar J to hold the card clothing while it is being trimmed on both edges at the same time and parallel with the card teeth therein; these parts being arranged and operated in the manner and for the purposes set forth.

No. 14,659.—JONATHAN J. HILLARD.—*Improvement in Spreading-Rollers for Stretching Cloth.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I am aware that the revolving spreader, formed of serrated bars arranged parallel to the axis, or encircling the same, and formed, each line of bars, in two lengths or parts, having longitudinal play in opposite directions parallel to the axis, is, in itself, no new device, but is a well known form of spreader used in machines for stretching and widening cloth; such, therefore, I do not claim; nor yet operating the stretching bars, as specified, by wheels set obliquely on the shaft or axis of the spreader, as this has before been done; but I *claim*, as a new and useful improvement on the revolving reciprocating spreader, the jointed and pivoted arrangement of the serrated stretching bars B B B^1 B^1, with the obliquely set wheels E on or round the axis of the spreader by means of the loose radial spokes D D and transverse pivots *a a*, for connecting the stretching bars with the obliquely set revolving wheels, and whereby increased freedom in the longitudinal play of the bars is obtained, and the cloth thereby more easily and effectually stretched without injury and without the interposition of lubricating material where such would be apt to soil the cloth, as set forth.

No. 14,725.—JAMES H. KINYON and JAMES HOLLINGSWORTH.—*Improvement in Cotton-Cleaners.*—Patented April 22, 1856.

The bottom of the hopper R is furnished with openings *m*, through which the hooked teeth *n* on the feed-rollers F^1 E^1 pass, to draw the

cotton do nward, until the two rotating brushes S S catch it. These brushes distribute the material on each side, whence each half is directed to the finishing rolls J I G H and brushes P P by the inclined guides *h l*.

The inventors say: We are aware that Alexander Jones has represented in his patent of April 25, 1837, two machines united in one frame; but they have no necessary connexion with each other, nor is there any part of the operation of cleaning or feeding that is common to both machines as in ours. We do not, therefore, claim the uniting together of two machines; but we *claim* the so arranging of the hopper R, feed-rolls F^1 E^1, and brushes S S, that they shall draw in the material, divide it into nearly equal parts, and throw one half in one direction and the remaining half in a contrary direction, to be acted upon by other rolls and brushes, as shown.

No. 14,965.—William B. Lindsay.—*Improvement in Cotton Gin.*—Patented May 27, 1856.

When the block D is at the end of its downward stroke, the cards *a a* will catch the cotton A^1, and as the block ascends, the cards will draw the cotton between the ribs *c;* the spaces between the ribs being too narrow to allow the seed to pass up, seed will fall through the slots *h*, and the cotton will be carried upward by the cards and between the cards E E. The cards E E are forced back by the block D and cards *a*, and serve to strip and loosen the cleansed cotton in the cards *a*, at the same time preventing the machine from being choked.

Claim.—The combination of the reciprocating cards *a a*, vibrating stripping cards E E, and ribs *c*.

No. 15,381.—James B. Miles.—*Improvement in Cotton Gins.*—Patented July 22, 1856.

The revolving motion of the pulley C causes the lever G to vibrate by means of the arrangement of the eccentric D and connecting-rod F; and the pawls H, sliding with their bearings *e* in a groove *d*, operate upon the ratchet-wheel K, which imparts motion to the feeding-roller O. The cotton passes over the swing-board L; and, when the machine feeds too rapidly, the roll of cotton will pass under the swing-board, press against the concave side, and press it towards the frame B, as represented in fig. 2. The lever N is then elevated, J depressed, and the bearings *e* of the double ratchets H are depressed by sliding in the groove *d*, thereby retarding the motion of the ratchet-wheel K and feed-roller O.

Claim.—The arrangement of the swing-board L, in combination with the mechanism described, so that the varying size of the roll of cotton in the gin shall govern the feed and keep it uniform, or nearly so.

No. 15,906.—JOHN L. TUTTLE.—*Improvement in Cotton Gins.*—Patented October 14, 1856.

The cotton is carried up from the breast of the gin by the teeth of the cylinder B, and the straight-edge *c*, made of steel, passes underneath the cotton seeds and raises them up on to itself, where they are met by the ribs *a* on the roller G and knocked back into the breast of the gin, whilst the fibre is carried through under the straight-edge, and may be taken off by a brush behind the cylinder in the usual well known way.

The inventor says: I am aware that a guard or shield, which might be termed a straight-edge, though not thin enough to pass under the seeds, has been used; but do not know that a roller, such as described, has ever been used in connexion therewith, so as to completely keep back the seeds, which my invention does.

I do not claim the knocking-roller and straight-edge, when used separately, with the toothed-cylinder, as they have been thus used.

But I *claim* the combined use of the straight-edge and roller for stopping and returning the cotton seeds to the breast of the machine, and allowing the fibre only to pass through, substantially as set forth.

No. 15,930.—JAMES B. MELL.—*Improvement in Cotton Gins.*—Patented October 21, 1856.

The cotton is shaken by hand into the hopper N, and is carried round by the teeth G of feed-roller B to the gin rollers C. The cotton is slightly opened by the teeth G; the blast of fan E, which revolves rapidly, blows the dirt out of the cotton, and also blows the dirt and seed, after they are separated from the cotton, out of the perforated concave R. The cotton is then brought by the teeth G to roller C, is drawn through the grooves of these rollers, and is separated from the seed; the brushes H prevent the cotton from winding round the rollers. After the cotton has passed the rollers C, it is met by the blast of fan F, and is driven out of the aperture at the end of O O.

The inventor says: Whether the arrangement of fan E within the roller B, as described, be new and be my invention, I do not claim it in these letters patent, nor do I waive my right to it in another patent.

But I *claim* the arrangement of two or more sets of ginning rollers, in an arch of the radius of the cleaning cylinder, in combination with brushes so arranged as to keep the rollers clean, and the fan F for removing the cotton from them as fast as ginned, substantially as described.

No. 16,022.—WILSON A. PURDOM.—*Improvement in Cotton Gins.*—Patented November 4, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—1st. Giving to the cotton to be ginned within the feed-box and before the saws H a recriprocating motion, by means of the cor-

gated cylinder A, or a modification of such cylinder, and the corru-ıted aprons B, or either of them separately, or their equivalents, so at the cotton will pass back and forth slowly in bulk, or nearly so, :fore the saws; thus presenting a fresh surface to the action of the .ws throughout the entire length of the saw cylinder, without leaving ıy of the saws idle, and without the accumulation of seed at one end the box, or the banking up of the cotton at either end.

2d. For the purposes aforesaid, I claim the cylinder A, or its equiva-nt, whether it is placed within or outside of the cotton roll, and hether it is permanently attached to the apron B or not; also whether revolves or not, or whether that revolution is continuous or inter-ittent.

3d. And for the purposes described, I claim the corrugated apron B, its equivalent, whether it is operated conjointly with the said cylinder or not.

ɔ. 16,096.—C. A. McPHETRIDGE.—*Improvement in Cotton Gins.*—Patented November 18, 1856.

The object of the friction spools N is to prevent the friction of the ws A on the sides of the breast-plate L, where it runs through, and increase the power by means of the leverage of the spools. They ɔo lift all extraneous substances over the saw, and allow them to .ss with the roll and fall off with the seed. The spools N are so ranged that the peripheries of the spools stand above the periphery the saw; thus, as the saw passes between the spools they are made revolve in the same direction, and as soon as the cotton is brought contact with the spool it is regularly stripped off and drawn down-ard between the spools on the further side, while on the front side, it, ith the seed in it, is lifted up and follows the roll, thus rendering it ıpossible for the gin to choke or break.

Claim.—1st. The friction spools N, arranged as described, in com-nation with the saw, for the purposes described.

2d. The breast-plate, as described, in combination with the spools as set forth.

ɔ. 15,904.—JOHN L. TUTTLE.—*Improvement in Manufacturing Cylinders for Cotton Gins and Machine Cards.*—Patented October 14, 1856.

A paper cylinder *g* containing the teeth *h* is slipped over the cylinder leaving a space between the cylinder *d* and the paper cylinder *g*, :o which the teeth *h* project; fluid metal is then poured in at the ɔ of the gutters *c*, which runs down said gutters and through the les *e* into the space *i*, completely filling up said space and uniting ɜ ends of the teeth with itself and the cylinders, so as to form one ɟid mass. After the cylinder is cooled the paper is soaked off, leaving e teeth *h* free and exposed to be ground for further use.

Claim.—The manner described of making cylinders for cotton gins, for carding or cleaning engines, viz: by introducing the fluid meta

which is to unite the teeth to the cylinder between the cylinders *a d*, and through the openings *e* into the space *i*, which unites the whole into one rigid mass, and avoids the danger of irregular flowing of the melted metal, as set forth.

No. 15,138.—L. JOHN MALLARD and WILLIAM S. BAKER.—*Improvement in Feeders for Roller Cotton Gins.*—Patented June 17, 1856.

The cotton is received at the opening *o* and drawn in by the teeth *t*, which, by the rapid rotary motion of the cylinder *c*, open, clean, and free the cotton from loose and broken seeds, which fall through the screen *g*. The gin rollers G seize the fibres and strip them from the seeds, which fall back through the screen, any excessive accumulation of cotton between the rollers being prevented by the action of the teeth, which drag the surplus away from the rollers and carry it round between the cylinder and its screen, thus preventing the heating of the rollers and cloging and consequent jerking of the machinery.

The inventors say: We do not claim any of the parts of the above described machine, separately considered; but we *claim* the combination of the screen *g* with the revolving toothed cylinder *c*, constructed in the manner described, and when so placed in relation to the ginning rollers G that any excessive accumulation of cotton between them shall be removed or prevented, and the excess be retained between the cylinder and screen until its quantity shall be equalized and relieved by the gin.

No. 15,703.—JOHN MARLAND.—*Improved Process of Manufacturing Delaines.*—Patented September 9, 1856.

This invention consists in subjecting wool to a combined process of combing and carding, whereby the evils attendant upon the sole use of either are entirely avoided, and the soft feel and pliant texture of the one are united with the evenness of thread and uniformity of appearance of the other.

Claim.—The method of operating upon wool by combing, and subsequently carding, in the manner and for the purpose set forth.

No. 15,585.—BENJAMIN WEIGERT.—*Improvement in Water-proofing Textile Fabrics.*—Patented August 19, 1856.

The nature of this invention consists in permanently obstructing the water-passages of textile fabrics with molecules of aluminum enveloped in glue, making the fabric permanently, that is, even after repeated washing, impermeable to water, without changing any of its ordinary properties, or its permeability to air.

Claim.—The treatment of textile fabrics with a solution of acetate of alumina and glue, prepared in the manner and from the ingredients and proportions stated, and for the purpose specified.

No. 16,293.—Werner Staufen.—*Improvement in Preparing Vegetable Fibres for Stuffing Mattresses and Cushions.*—Patented December 23, 1856.

Vegetable fibres are subjected to a process of twisting, and the twists or ropes thus formed are immersed in water and allowed to remain therein until the fibres become perfectly soft and pliable. The twists are then removed from the water and subjected to such a degree of heat as to thoroughly dry them. The twists may then be picked to pieces, and the fibres will be found to be permanently curled and elastic.

Claim.—As a new manufacture, an article for stuffing mattresses, cushions, &c., produced by permanently curling any suitable vegetable fibrous substance, by the method substantially as set forth.

No. 16,149.—Horace W. Peaslee.—*Improvement in Drying-Cylinders for Fibrous Manufactures.*—Patented December 2, 1856.

The spiral coil D is wound upon a wooden cylinder B, which is covered with non-conducting material C. The coil is enclosed within a metallic casing E fastened to the heads A, which forms the heating or drying surface of the cylinder.

Claim.—The employment of a spiral tubular heater upon a non-conducting cylinder, in combination with an exterior metallic casing, as set forth.

No. 14,559.—William Fuzzard.—*Improvement in Cloths for Felting Hat Bodies and other Articles.*—Patented April 1, 1856.

H H represent the hat bodies which are laid between folds of the corrugated apron G. The apron when folded is rolled around a small corrugated roller I, and is then placed between the lower part of the endless apron F. The corrugated apron is thus brought in contact with the whole surface of the hat bodies, and the operation of felting is accelerated fully one-third, and the work is done more perfectly than by the usual mode.

Figure 4 shows two different forms of corrugation.

Claim.—The use of corrugated apron G, constructed of any proper material, substantially as and for the purpose specified.

No. 15,508.—E. R. Barnes and James B. Blakslee.—*Improvement in Felting Hat Bodies.*—Patented August 12, 1856.

The articles to be felted, as represented in dotted lines, are placed upon the front end of the endless apron B, which is formed of the slats *c* secured to India-rubber belt *d*, the latter passing around the rollers *a*. Motion being given to the drawing shaft M, the apron B is moved in the direction of the arrow, and a reciprocating motion is

given to the board I. The materials to be felted pass beneath the board I and the apron B, and are finally delivered on bed H.

Claim.—The peculiar arrangement of suspending and rendering elastic and adjustable the endless rotating bed of felting machines, substantially in the manner described, so that it may be elevated or depressed, while in operation, and at the same time possess an oscillating motion, in order to adapt itself to the varying stages of the process of felting.

No. 15,627.—JOSEPH THOMAS.—*Improvement in Machinery for Felting Hat Bodies.*—Patented August 26, 1856.

The articles to be felted being put into the machine, the crank-wheel N will, in its revolution, cause the discharging wheel, which rotates upon shaft K, to operate and carry forward the goods, while the crank I, by means of the connecting-rod M and lever L, will give a vibratory motion to the wheel E, which rubs the goods back and forth against the plate F as the discharging wheel carries them forward; which operation is repeated until the goods are sufficiently felted.

Claim.—In hat sizing machines the employment of a discharging slotted wheel, when arranged as described, for feeding the goods into and through the machine, essentially as set forth.

No. 14,845.—JAMES S. TAYLOR.—*Improvement in Machinery for Felting Hat Bodies.*—Patented May 6, 1856.

Motion being given to the cylinder of rollers, the hat bodies Q will be carried around between the series of rollers and the rubber E, and discharged at a^1. The bed having a vibratory motion given it by the rods or bars F F, and the rollers M rotating on their axles in the direction indicated by the arrows, in consequence of the wheels N bearing upon the ledges *i i*, the hat bodies will consequently be subjected to the necessary rubbing and rolling, the rollers M turning in the direction as shown, insuring the rotation of the articles in the space P, and thereby causing them to be perfectly felted.

The inventor says: I do not claim of itself as new a vibratory bed or rubber operating in connexion with rollers for felting hat bodies; nor yet merely of itself as new, rollers having a positive motion or reverse action for various rubbing and other purposes, as such are old and common to felting and other machines.

But I *claim* the vibrating rubber or bed E, in combination with the rubber M, having a positive movement or rotation on their own axes given them in a direction causing the outer points of their peripheries to travel in the direction of their general travel, as required by the rotation of the central shaft B, as specified, when the same are arranged for operation together as herein set forth, for the purpose described.

No. 15,261.—Joseph Thomas.—*Improvement in Machinery for Felting Hat Bodies.*—Patented July 1, 1856.

The revolving crank-shaft H will cause the screw to work the hopper by means of the gear which is fast thereon, while the cam N, working in the grooved piece at M, will cause the screw-shaft to vibrate and advance to feed the goods and felt or size them by the conjoint action of the hopper surface and the segments F F.

Claim.—Giving the vibrating motion to the reservoir wheel D, by the combined action of the screw K and cam N, (or an equivalent device,) when arranged and operating essentially as described and for the purpose set forth.

No. 15,290.—William Fuzzard.—*Improvement in Machinery for Felting Hat Bodies.*—Patented July 8, 1856.

The box A is supplied with the requisite quantity of water, which may be kept in a heated state by a furnace placed underneath. The hat bodies to be felted are rolled around a cylinder *f*, and are placed within the fold of the apron E. A rotating reciprocating motion is then given to the roller C, and the end of the apron which is attached to the roller C, will be raised up and down, the hat bodies being subjected to a rolling motion, and also to a certain degree of pressure against the platform D, which pressure may be increased or diminished by regulating the position of the platform D, as indicated by the dotted position of said platform.

Claim.—The apron E connected to the vibrating or reciprocating roller or cylinder C, and to the adjustable platform D, and arranged in relation to the reservoir or box A substantially as described and for the purpose specified.

No. 15,375.—Lansing E. Hopkins.—*Improvement in Machines for Felting Hat Bodies.*—Patented July 22, 1856.

The hats *r* are placed in bags in the interior of a revolving apron *n*. The vibrating beater *b* works the hats between its corrugated sides *b* and the similarly corrugated beater-heads *q*. The distance between the beater *b* and the beater-heads *q* can be adjusted by means of the screw-nuts *o* and bolts *p*.

Claim.—1st. The combination of the beaters, the revolving belt, and the beater-heads, operating substantially as described.

2d. The adjustability of the beater-heads, in combination with beaters having a positive motion, substantially as shown.

No. 15,443.—Alva B. Taylor.—*Improvement in Machinery for Forming Hat Bodies.*—Patented July 29, 1856.

The operation of this machine is as follows: Motion being imparted to the main shaft E, a weighed quantity of fur, sufficient to form one hat body,

is laid upon the feed-apron C and is conveyed to the feed-rollers e e, which present it to the main picking cylinder B, which, together with the secondary picking cylinder B^1, discharges the picked fur; the latter is drawn to the one of the three perforated cones G^1 G^2 and G^3 which is nearest to it, and as this cone rotates, it collects the fur upon it. When the charge upon the apron is exhausted, the operator applies a cover to the bat, and turns the pyramidal draught-box H one-third around, which movement brings a second cone in the proper position to receive fur from the picker; while the first one, with the bat and exterior cone upon it, is brought to the hardening apparatus N. The three cones go successively through the same operation as the one here described.

Claim.—The combination of a perforated cone, picking apparatus, and feeding apparatus, located and arranged as described.

The combination with a main picking cylinder of a secondary picking cylinder, operating substantially as set forth.

The pyramidal draught-box, constructed substantially as set forth, in combination with a fan and fan-case for generating the currents of air.

No. 15,715.—D. G. Wells.—*Improvement in Machinery for Forming Hat Bodies.*—Patented September 9, 1856.

The endless apron C receives the fur, and carries it to the feed-rollers D; and passing between these rollers it comes in contact with the picking cylinder E, and thence is thrown off towards the perforated cone E, which revolves on its vertical axis. The rotary picker E is furnished with serrated fans L, which serve the double purpose of picking and separating the fur, and then blowing it off towards the hat-former F. The air enters the picking cylinder at each end through the apertures N, and, passing out between the fans L, is thrown off at its periphery, carrying with it the fur as it comes from the feed-rollers D. The cone F is exhausted by means of the fan-blower G; by this fan a secondary current of air is caused to pass upwards and to escape through the wedge-shaped opening P R S, created by the valves K, which serve to regulate said opening, and the blast passing through it causes the fur to be distributed equally over the surface of the former F.

The inventor says: I do not claim the use of the secondary currents of air, nor valves to control them.

1st. I *claim* the mode of guiding the currents of air from the picking cylinder in their passage to the cone, substantially as described.

2d. I claim the mode of regulating the secondary currents of air by means of the wedge-shaped apertures formed by the valves K K, substantially as set forth.

No. 15,903.—James S. Taylor.—*Improvement in Machinery for Forming Hat Bodies.*—Patented October 14, 1856.

The fur is placed on the conical feed-table B, and motion being communicated to the machine by revolving the shaft H, the feed-table is revolved under the conical rollers P; these draw the feed up between

em to the picker O, which revolves with a rapid motion, picking the r from the conical rollers, whence it is drawn on to the exhausted rforated cone L. The brush T, revolving in a vat of water, throws e water upon the bat as it is formed on the cone L, thereby saturaıg it preparatory to removing it from the cone without tearing or rupring the same.

The inventor says: I do not claim a perforated cone or exhaust, ›th of which are well known devices used in machinery for forming ır hats; neither do I claim a picker to pick up or blow the fur on to ıe cone, as that is a well known device used in machinery for picking ır, wool, or cotton. Neither do I claim moistening or wetting the hat reparatory to removing it from the cone.

But I *claim* the revolving feed-table, in combination with the picker, ›ne, and exhaust, operating in the manner and for the purpose set rth.

I do not claim the principle of wetting or moistening the hat when rmed on an exhausting cone, for that is a principle well known; either do I claim the combination of currents of air and the currents f numerous jets of hot water in the hardening or wetting process, as ıat is a combination found in D. Barnum's patent, July 1, 1851.

But I *claim* the combination of the revolving brush, arranged as described, with revolving perforated cone, for the purpose of moistening ıe fur as it is thrown upon the cone, substantially in the manner described.

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o. 14,476.—ALVA B. TAYLOR—*Improvement in Machinery for Making Hat Bodies.*—Patented March 18, 1856.

A quantity of fur is laid upon the feed-apron C, and is conveyed by to the feed-rollers *e e*, which present it to the picking cylinder B. When the fur leaves the cylinder, it is drawn towards the perforated one G^2. As soon as the whole of the fur is collected upon the perrated cone, a cover is applied to the bat, and the draught-box H is ırned round one third. This movement brings a second cone in its roper position, while the first one is brought to the hardening apparatus. This hardening is effected by the combined action of pressure nd motion by means of the weighted rollers N and the bar O, arm *n*, ins *r*, and scolloped rim of wheel P.

The fan M is situated in the fan case I, at the mouth of a circular pening in a partition L which divides the fan case into two parts, the ırger of them communicating with the draught-box, and the smaller rith an air trunk.

The radial partitions *s s s*, together with the arrangement as seen ı figures 4 and 5, serve to guide the compressed wind through the one into the interior of the bat.

Claim.—The arrangement for hardening the hat body in a dry state y machinery operating substantially as herein set forth.

I also claim the method of facilitating the removal of the hat from the erforated cone by means of a blast of air forced through the cone.

No. 15,008.—Sylvester H. Gray.—*Improvement in Machines for Felting Hat Bodies.*—Patented June 3, 1856.

The journals of the two rows of rollers *b b* and the polygonal rollers *g g* (around which the endless apron *e* revolves) turn in boxes in the side pieces of a carriage *c*, which slides in the side pieces *d d* of the main frame. The shaft *h* of one of the polygonal rollers passes through a mortise *i*, and carries a cog-wheel *j*, which engages the pinion *l* on shaft *k*. The other end of shaft *k* carries pulley *m*, which receives a band *n* from pulley *o* on crank-pin *p*, whereby the rotary motion is imparted to the endless apron bed. The crank pin *p* is attached to pulley *q* on shaft *r*, which passes through the other side of the frame, where it is provided with a corresponding crank-pin p^1. These two crank-pins *p* and p^1 are connected by rods *t t* with the two projecting ends of the shaft *k*, by which a longitudinal reciprocating motion is imparted to the carriage and endless bed. The shaft *r* is revolved by means of pulley *u*, band *u*, and the pulley on the driving-shaft *v*

The inventor says: I am aware that hat bodies have been felted or sized by being rolled between a bed and pressure plate by the action of a compound continuous and reciprocating motion, and therefore I do not wish to be understood as claiming the method of giving the felting action by such compound motion; but I *claim* the manner in which the compound continuous and vibrating motion is imparted to the endless bed.

No. 14,521.—Albert Spencer.—*Improvement in Machines for Sizing Hat Bodies.*—Patented March 25, 1856.

The rubber board G is made with a gradually increasing pitch of face (as seen at g^2) for the introduction of the felt. The rubber board is vibrated on the pin H by means of lever L and tapis wheel N, thereby causing the hat body to felt up. F is a weight at the end of lever E, which presses the disk against the hat body.

Claim.—The disk wheel having been patented, I disclaim the use of it, irrespective of my combination, and therefore limit myself to the combination, as herein set forth.

I *claim*, therefore, the application and use of the combination of the disk wheel D and the rubber bed G, when the bed receives a vibratory motion, substantially in the manner and for the purposes herein before described.

No. 14,960.—Samuel C. Ketchum.—*Improvement in Machines for Sizing Hat Bodies.*—Patented May 27, 1856.

The object of this invention is to obtain an elastic or self-adjusting rubber bed, upon which the roll of felt would receive a constant elastic pressure throughout the entire circumference of the shell, though constantly varying in size, in consequence of its rolling action.

Claim.—The use of the combination of the elastic shell D (upon the revolving drum or cylinder C) with the vibrating case I surrounding the same, when made for the purposes substantially as herein set forth.

o. 15,154.—Joseph Thomas.—*Improvement in Machines for Sizing Hat Bodies.*—Patented June 17, 1856.

Motion being given to the wheel T, the cams Y Y strike the levers L, giving a vibratory motion to the carriage K, which latter, in combination with the ratchet-rollers M M and *c*, feed the material into e machine.

The crank Z imparts a vibratory reciprocating motion through the ver H to the levers J, and consequently to the wheels E and U. hese wheels are covered with any material to produce the requisite iction upon their peripheries. During a half stroke of the crank Z e dog X will drag over the teeth of the ratchet-wheel V, and thus low the wheel U to remain without motion; but during the other alf stroke the stationary pin *c* will cause the dog X to catch in the tchet-wheel V, and move it forward; thus giving an advance move- ent to the wheel U, which presses upon the wheel E, and causes the ume, together with the wheel D, to advance.

The bar P is attached to a lever Q by a bolt *d*. As this lever is eighted down by moving the weight S, it will draw the corrugated late closer to the wheel D, and also carry the apron C 1 closer to the tchet-rollers, and by this means render those parts adjustable as to ressure of the material to be sized or felted.

Claim.—1st. Combining with the wheel D the wheels E and U, (or eir mechanical equivalents,) for giving the main wheel a vibrating otion when used with a stationary plate or bed, in order to rub the oods back and forth; and also in combination therewith the mechan- m for giving the main wheel the constantly advancing motion, when rranged and operating as described.

2d. Combining and arranging the circular plate or bed B 1 and table 1 in such a manner that, by the levers A 1 (or their equivalents) and ords *b b*, the same mechanism may adjust the plate B 1 to the wheel), and also the table C 1 to the ratchet-rollers, and thus give any ressure desired to the goods, substantially as described, and for the urposes set forth.

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o. 15,534.—Alva B. Taylor.—*Improvement in the Manufacture of Hat Bodies.*—Patented August 12, 1856.

In this machine for manufacturing hat bodies the picking cylinder is opposite the perforated cone G; hence the fur which proceeds om any portion of the picking cylinder lodges upon a corresponding pposite portion of the perforated cone; and if it is necessary to in- ease the thickness of the bat at any particular part of the perforated one, the operation is effected by distributing the charge of fur upon e feed-apron C in such a manner that there shall be more fur con- eyed to that part of the picking cylinder which delivers fur to the art of the perforated cone where the bat is to be made thickest.

Claim.—Regulating the distribution of the fur or other stock upon e perforated cone, by varying the feed of the picking cylinder at fferent parts of its length.

No. 15,929.—Joseph McCracken.—*Improvement in Sizing Hat Bodies.*—Patented October 21, 1856.

The object of the hollow India-rubber cylinder A is to sustain a perfect roll in the felt, and yet be elastic enough to give the roll of felt in passing through the machine an easy working motion, so as to size up the most delicate felt textures, while the water of the interior folds of the felt is allowed to escape through the perforations B.

Claim.—The use of the India-rubber or other elastic perforated cylindrical roller for working or sizing hat bodies upon, when constructed in the manner and operated in the mode substantially as set forth.

No. 16,305.—Sylvester H. Gray, assignor to Himself and Francis Ives.—*Improvement in Machinery for Sizing Hat Bodies.*—Patented December 23, 1856.

The hat bodies are placed upon the inclined feed-board *f*, and pass down upon the endless carrying bed *c*, where they are worked by the combined motion of the endless carrier and the vibrating carriage *b*; they then pass down the guide *h*, and between the revolving endless bed *c* and steam chest *d*, and return to the front end of the machine, there to be received by the operator.

Claim.—Attaching the guide *h* to the rear end of the vibrating carriage *b*, in the manner described, for the purposes specified.

2d. The use of the adjustable steam chest *d*, in combination with the vibrating carriage *b* and the revolving endless bed *c* on carriage *b*, made and operating substantially in the manner and for the purpose specified.

No. 14,862.—A. C. Fuller.—*Improvement in Hat-Felting Machines.*—Patented May 13, 1856.

The hat bodies Q are rolled and fed in between the lower part of the drum B and shell C, and are carried around and discharged at the upper end of the shell C. The polygonal form of the drum causes the hat bodies to be compressed at intervals. The rollers D D check the speed of the hat bodies, and prevent them from passing too rapidly out from between the drum and rollers.

The inventor says: I do not claim a vibrating rubber-bed in combinations with rollers having positive and reverse action; but I *claim* the polygonal drum B, constructed and operated substantially in the manner and for the purposes described.

No. 14,121.—James S. Taylor.—*Improvement in Machinery for Felting Hats.*—Patented January 15, 1856.

The hat to be felted is placed in the cavity at the end of the rollers; the two lower rollers B B merely rotate on their axes, but the two upper rollers have a lateral vibrating motion, which is given them by the cam D.

The inventor says: I do not claim a series of rollers placed within a rack or frame independent of giving two or more of said rollers a lateral or vibrating motion, for they have been previously used.

Neither do I claim giving the hats a rubbing or vibrating motion, as that is a motion indispensable in all machinery for felting hats.

Nor do I claim the contrivance above set forth as an independent invention, but merely as an improvement on my hat-felting machine, patented May 3, 1853; and the patent, if obtained, will be subordinate to the previous patent, and cannot be used without a license from the legal owner of the patent of 1853.

But I *claim* the combination of machinery operating in the manner substantially as set forth, for the purpose of giving the hat a rotary, longitudinal, and vibratory motion at one and the same time, thereby subjecting the hats as they pass along the chamber *a* between the rollers B B B B to a kind of rubbing or friction similar to the rubbing performed by hand, and therefore causing the hats to be felted in a more perfect and expeditious manner than by the combination of any machinery ever before used.

No. 14,330.—Russell Wildman.—*Improvement in Machinery for Hardening Hats.*—Patented February 26, 1856.

When the cone C has received a slight covering of fur, the elastic rubber felter F is swung (from the position represented by dotted lines) in contact with the cone, as represented by full lines. While the cone is revolved and the felter carried round with it, the latter at the same time receives a rapid vibratory motion. A tremulous motion is thus imparted to the elastic surface of the felter, by which means the felting process is to be facilitated.

Claim.—The inflated elastic rubber herein described, constructed and operated in the manner substantially as herein set forth.

No. 14,401.—Samuel A. Kinsman and Samuel Field.—*Improvement in Machinery for Ironing Hats.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engraving. E F and 7 are the flats.

The inventor says: We do not claim any peculiar form of hat-holder, nor any spring movement to a side flat, nor a fan to regulate the downward movement of the hat-block, nor any arrangement of toggles to operate the crown-flat; for all of these we are aware are embraced in a patent granted Dexter Dennis on the 4th July, 1854. But what we *claim* is, arranging the cam 14 so that, when operated by the gear 16 and 17, substantially in the manner described, it will control the vertical movement of the hat-block S R through levers 21 and N, in combination with the lever L, arranged substantially as described, to control the lateral movement of the hat-block, and thus secure the adequate pressure on all parts of the hat at one time.

No. 14,062.—JOSEPH JOHNSON.—*Improvement in the Manufacture of Hats.*—Patented January 8, 1856.

The nature of this invention consists in using a fabric made after the manner of hair-cloth and consisting of slender splints of whalebone, willow cane, or wood fibre, interwoven with common thread and cemented together with water-proof gum; and also in using in the construction of these hats a thin metallic ring E, for the purpose of keeping the upper part of the hat in its proper cylindrical form when the tip is made lighter and thinner than the side crown thereof.

The inventor says: Having thus described my invention and shown its utility, I proceed to state that I do not claim, in manufacturing hats, the use of soft water-proof gums, nor the combination of the same with whalebone, wood fibre, cork, tarleton, or with either of them, as these have been used before; nor do I claim the peculiar fabric herein described as "woven after the manner of hair-cloth, and consisting of thread interwoven with slender strips of either whalebone, willow, or other wood fibre," although the said fabric is believed to be new; but I *claim* the application and use of the said fabric in the construction of hat bodies, when the same is cut from the web, united together and formed into hat bodies, substantially in the manner herein set forth and described.

I also claim the metallic ring or annular plate, made substantially as described, in combination with the "turn-over" around the "square," for the purpose of preserving the proper circular form at the "square" when the fabric of which the "tip" is made is too light or thin to serve the purpose of such support.

No. 14,343.—JAMES W. BEEBE.—*Improvement in Manufacturing Hats.*—Patented March 4, 1856.

By giving the stiffness required to the body alone, instead of the entire hat, the covering as well as the body can be made very thin and light, and hence the whole hat will be much lighter than when the entire hat is stiffened as usual.

Claim.—Making hats with a stiffened body *a*, combined with a felt covering *b*, reduced to the required form by felting, and put over and attached thereto with hatter varnish, or other equivalent adhesive substance, substantially as set forth and for the purpose specified.

No. 14,394.—NANCY DAVY, executrix of EDWARD DAVY.—*Improvement in Machinery for Preparing Hemp and Flax.*—Patented March 11, 1856. Patented November 13, 1852, England.

The hemp stalks are fed in between the fluted rollers C by means of the endless apron *b*, and are operated upon during their passage between the rollers *c* by means of the slides *f f*, which move up and down and cause the woody part of the plant to be disengaged from the useful fibre. As the material passes from the rollers *c* to the rollers *m*, it is operated upon by a bar *r* provided with hackle points.

Claim.—The reciprocating plate or plates *f*, in combination with holding or retaining rollers *e*, for effecting the separation of the fibres of flax and hemp, substantially as herein described, and combined herewith.

I also claim the combination of the hackle bar, operated as described, with the rollers and reciprocating brakers or plates.

No. 16,279.—EDWARD W. LACY.—*Improvement in Hemp-Brakes.*—Patented December 23, 1856.

The driving-shaft G transmits motion to shaft I and cam K, which operates the lever M to lift the braker and braker-block S attached to the rock-shaft D. During the operation, the attendant ships the adjustable weight F by means of a pedal to a point at which it will give to the stroke such a momentum as the quantity or quality of the stalks under the braker may require.

Claim.—The adjustable weight F to be used with or governed by a treadle-roller, or its equivalent, to regulate at pleasure the momentum of the blows upon the stalks, as described.

No. 15,166.—R. W. BOWEN.—*Improvement in Hemp-Brakes.*—Patented June 24, 1856.

The lower arm B of the braker is jointed to the upper one by connecting pieces *d d*, and turns around a pivot *e* in the smaller posts C. The upper arm has two blades; the lower one three blades. By means of connecting pieces *f f*, the lifting blades D D are firmly attached to the upper blades, and move uniformly with them, and come up clear to the top of the lower blades, when the breaker is opened.

Claim.—The peculiar construction of the upper and lower blades of the brake so that they shall approach each other at the same moment, but with different velocities, substantially in the manner described—that is to say, pivoting the lower blades at or near their front ends in a firm frame, and connecting their rear ends to the top blades, which are pivoted at a point about two-thirds of their length in a solid frame, and operated in front.

No. 15,498.—MERIWETHER THOMPSON.—*Improvement in Hemp-Brakes.* Patented August 5, 1856.

Motion being imparted to the machine by means of crank 19, and the hemp being placed upon the rails G J K, the swords P and braker Q are caused to work up and down by the arrangement of the conical pulleys V and V^1, crank 2, pitman 5 6, curved crank-arm 7 8 9, and shaft O. The compensating pitman and crank connexion, consisting of buffer-block 3, spring 12, and elastic block 10 at one end, with a pin at the other end sliding in the curved slot of the crank-arm 7 8 9, afford the means of overcoming entirely the checking or retard action of the swords P, caused by an excess supply of material under

the brakers. The forked lever X serves to regulate the entire apparatus, as by it the velocity of the conical pulley V can be regulated by shifting the belt W, and also the cord 18 and end 6 of the pitman can be raised or lowered.

The inventor says: I do not claim a compensating pitman as such.

But I *claim* the arrangement of a compensating pitman when applied to a hemp-brake, and constructed substantially in the manner and for the purpose described.

I do not claim cone-pulleys for varying the speed of my machine, nor the slotted arm and shifting pitman to vary the stroke of the brake.

But I *claim* the arrangement described of the cone-pulleys, or equivalent mechanism for varying the speed, and the arrangement of the slotted arm 7 8 9 and shifting pitman, as described, in such relation to each other that, by the described connexion between them, through the shifting lever X and the cord 18, any change of speed shall effect a corresponding change in the stroke of the brake.

No. 16,285.—WILLIAM H. MCNARY.—*Improvement in the Manufacture of Hosiery.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not confine myself to the use of any particular machinery to produce the results described.

I *claim* the production of the heels and toes of hosiery by knitting a spherical piece on the cylindrical or straight portions of the leg or foot, by the mode of operation described, whereby the same number of stitches is always left remaining on the needles, and the cylindrical or straight portion is enabled to be proceeded with again, when desired, thus enabling the whole leg and foot to be produced by a continuous operation of the devices or machinery employed.

No. 15,607.—WILLIAM GODDARD.—*Improvement in Manufacturing Seamless Hosiery.*—Patented August 26, 1856.

The nature of this invention will be understood from the claim and engravings.

Claim.—The process or method of manufacturing seamless hosiery of the form required for what is known as seamless tubular knitted fabrics, such as are knitted on machines that knit the tubes of a uniform diameter, and adding thereto the ribbed top, the heel, and the toe, by hand knitting, or any equivalent therefor, as described.

No. 15,314.—JONAS B. AIKEN and WALTER AIKEN, assignors to HERRICK AIKEN and JONAS B. AIKEN.—*Improvement in Knitting Machines.*—Patented July 8, 1856.

The needles are inserted into the grooves of the hollow conical needle-plate B so as to be flush with the sides; the conical driving-

plate F rests with its sides on the needles, and they are held between the sides of the two plates F and B; the object of the conical shape of the needle-plate B is, that needles of greater length can be used than in horizontal plates. The driving-plate F which operates the needles has two grooves *b* and *c* cut in its outer surface—the groove *b* for operating the needles, and the grooves *c* for the retreat of the same. The grooves *b* and *c* are represented in figs. 2 and 3; they operate the needles by means of their bent ends sliding in the grooves. When the needles are not required in operation, they are made to pass into the horizontal retreating groove *c*, by means of a needle-switch *g* (fig 3), which is pivoted to the handle *f*, and can be operated by it. The machine is set in motion by turning the driving plate F by means of the handle *f*, when the needles will operate as represented in the illustration.

Claim.—1st. The hollow circular needle-plate having grooves cut in its inner surface.

2d. We claim the horizontal groove *c* near the bottom of the cone, so arranged in relation to the inclined operating groove that the needles may be retreated thereto, as described, and retained therein when they are not wanted to operate on the fabric knit.

3d. We claim the switch *g*, arranged substantially as described, to change the needles from the inclined operating groove to the retreating groove.

No. 15,435.—JOHN NESMITH.—*Improvement in Knitting Machines.*—Patented July 29, 1856.

The nature of this invention consists in narrowing the knitting work by lowering one or more of the needles *a* at each passage of the yarn-carrier P, so that the yarn will continue to pass through only the remaining loops of the raised needles until the narrowest part of the fabric is made or arrived at, and then widening this fabric as the knitting progresses by raising the needles, one at a time, to an equal level with the other needles, so that the yarn may pass through their loops in common with those not lowered, and thus widen the fabric as much as the distance from needle to needle, when each of them is raised on the knitting line, so that the yarn will pass through their loops. The desired number of needles are lowered to allow the remaining ones only to knit, which constitutes the narrowing, by means of slides N^6 and N^2, having a lower slot to carry the needles when lowered, and an upper slot or plane to carry the needles when raised, these slots being connected together by an angular slot; and the needles are caused to travel in these slots by moving along the slides, whenever it is desired, by means of a registering apparatus, consisting of the worm A^2, gear C^3, shaft B^4 and its cams K^3 and K^6, cam B^2 revolving between the levers H^3 and H^6, and thus imparting the vibrating motion to dogs H^2 and H^7, which operate upon the governor G^2, turning the ratchet I^6, which is secured to the shaft E^2 so as to turn it and pinion T^3, which meshes into the rakes Y^2 and Y^6, which latter move the slides N^2 and N^6, the entire registering apparatus being driven by main shaft D.

Claim.—1st. The lowering or raising the ends of the needles which receive the threads, so that the threads will not enter the hooks of the needles when out of their working line, as the carrier passes them, while the other ends of the needles remain connected with the mechanical arrangement used for pushing them forward and drawing them back to form a stitch on their working lines, essentially in the manner and for the purposes set forth.

2d. I claim the slides N², or their mechanical equivalents, for taking the needles out of the work for narrowing the fabric, and bringing them back into the work for widening the fabric, essentially as set forth.

3d. I claim the metallic rests or guards *d*, or their equivalents, for constantly keeping a number of the needles in their working line, essentially in the manner as fully set forth and described.

4th. I claim the connexion of a registering or measuring apparatus, constructed as described or otherwise formed, with the moving parts of my machine, for the purpose of bringing into use and taking out of use the requisite needles at the proper time of shaping the fabric, and for severing the threads when the work is done, and stopping the machine when required, essentially in the manner as set forth.

5th. I claim the arrangement and movement of the finned bar W, or its mechanical equivalent, to aid in forming the stitch, also its movement backwards to uncover the ends of the needles for putting on the new fabric, essentially in the manner and for the purposes set forth.

No. 15,484.—Augustus J. Goffe and Demus Goffe.—*Improvement in Knitting Machines.*—Patented August 5, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

The inventors say: We are aware that machines have been made which have a complete converging series of latch needles arranged in a circular plane to slide endwise and down the yarn from a yarn-carrier around stops arranged between the needles to take up enough yarn for the new loops; and we know that machines are in use which have a complete converging stationary series of fixed needles arranged in a plane; but our invention, as described, is not embraced by such machines.

We *claim* the employment of a stationary circular converging series of hooked needles *a*, arranged in a plane, and made to slide in respect to the revolving or travelling yarn-carrier E and presser D, and also in regard to the stationary ring of stops *c c*, as described, in connexion with the inside web guide C, or its equivalent, as set forth, for knitting plain tubular work.

No. 16,297.—Clark Tompkins.—*Improvement in Knitting Machines.*—Patented December 23, 1856.

Motion being imparted to pinion *r* on shaft C, the disks E and F are rotated with shaft C, the draught roller A not being connected with as

haft. By operating screw-nut *d*, the disk F can be pressed against lisk D^1, and the friction between the driving disks E F and the disks) D^1 on roller A can be regulated so that the driving disks shall just lip forward on the roller A when the web has the proper tension for nitting. After this first adjustment, the tension produced by the rollers . B on the web, as it is drawn by them directly from the needle cylinder, rill continue the same, whether the yarn from the bobbins runs fine or oarse.

Claim.—The improvement of driving the rough roller A of the take-p mechanism of a rotary knitting machine, by means of rotary friction lates, or their equivalent, substantially as described, instead of giving . positive rotary motion to this roller, as heretofore, so that this draught oller, with its incumbent take-up roller B, without any additional nechanism or any re-adjustment, continually gives the same tension o the web, in knitting, however much the yarn varies in size, or whether nuch or little yarn is fed to the needles, or whatever quantity of web s on the take-up roller.

No. 15,006.—RUFUS ELLIS.—*Improvement in Needles for Knitting Machines.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and he engravings.

Claim.—Making the journals *c d* or connecting-rod of the hinge fast o the male or entering projection *b* thereof, in combination with so onstructing the female socket *f g e* of the hinge as to enable the male art, or its journals, to be moved downwards and laterally in order to letach the same from the female part, and providing such female part vith a spring stop *i*, or its equivalent, whereby, when the male and emale parts of the hinge of two links are connected together, they may e prevented from accidental disengagement.

No. 14,975.—CLARK TOMPKINS and JOHN JOHNSON.—*Improvement in Rotary Knitting Machines.*—Patented May 27, 1856.

D^1 is a bent arm fastened to the guide frame E. D is a rod, attached t one end to the outer end of D^1, and at its other end to the shield B, vhich is hung on the shaft S. The take-up reel F is geared so as to vind up the web a little faster than is required; but as the tension oller A begins to rise, the shield B is so turned by its connexion with he tension roller as to lift the click C out of the ratchet, and thus pre-ent the further taking up of the web until the tension roller descends y the production of more web, so as to let the click C act on the atchet again; the tension roller A can therefore only rise in the take-p frame K to a certain point; and by allowing the tension roller but . very short movement, it will continually produce an even tension on he web until the take-up reel is full.

The inventors say: We do not claim any arrangement of a tension od or roller to give even tension to the slat or non-revolving circular

fabrics of knitting looms or machines at the same time such fabrics are produced and taken up, nor do we claim any mode of causing the tension rod or roller in such stationary machines to so govern the motion of the take-up beam that it shall take up the fabric as fast as produced; but we *claim* the combination of the tension roller A with the take-up mechanism, or its equivalent, when applied to rotary knitting machines.

No. 15,492.—SIDNEY W. PARK and EDGAR S. ELLS.—*Improvement in Rotary Knitting Machines.*—Patented August 5, 1856.

A detailed discription of this invention would occupy too much space to be given here; the principal features are indicated by the claims and engravings.

Claim.—Combining two annular series of hooked needles with a sinker C, two pressers F and G, and a web guide D, or its equivalent, substantially as herein set forth, for use in the production of ribbed work, as specified.

2d. The manner of arranging two annular sets of needles in relation to each other: that is, arranging them together so that the hooked ends of the needles of one set are parallel or nearly so with, alongside of, and pointed in the opposite direction to those of the other series, as herein set forth.

3d. The improvement of arranging the sinker C, substantially as herein described, to increase the distance between the yarn and the loops of the second set of needles just before the barbs of these needles are pressed.

4th. The improvement of arranging the cam B so as to spring out the ends of the second set of needles, substantially as described for the purpose specified.

5th. The improvement of holding the needles of an annular series in place on the grooved needle block, or its equivalent, by a ring A, constructed, arranged, and operating as set forth.

No. 14,590.—ERASTUS B. BIGELOW.—*Improvement in Looms.*—Patented April 8, 1856.

A friction brake, for holding the warps firm at the beat of the lathe *c*, vibrates on the stud *m*; the shipper arm *n* forms the brake, and is made to conform to the flange *l*, while the arm *o* extends downwards, and is connected with the sword of the lathe by the rod *p*, so that when the lathe advances to the cloth it brings the brake arm *n* into action.

When the warps are used up so as to require more to be given out from the yarn beam, the tension roller *f* is drawn forward, and the projection b^1 raises the feeler *z* and allows the spring *x* to draw back the rod *w* so that when the lathe again falls back it turns the yarn beam. When more warps are being given out than are wanted, the arm *z* falls down and holds the lever *v* in a state of rest until it is released as before.

The belt cone d^1 is acted upon by the shipping lever g^1, which presses the cone d^1 against the friction cone c^1. Fig. 4 represents a cross section of these cones and a part of the shipping lever g^1.

The shipper k^1 projects below the stud p^1, and carries the cam r^1, which acts, when the shipper is released, on the roller o^1, and brings the brake into action.

When the loom is started again, the cam r^1 turns and liberates the roller o^1, and allows the brake to free itself from the cone by its own gravity.

The friction brake may be released by means of the treadle u^1, which forces the roller o^1 from under the cam r^1 and the projection w^1, whilst the projection x^1 prevents the roller o^1 from rising above the line of the small part of the cam r^1, so that the spring g^1 is sure to force the roller o^1 under the said cam for another operation.

Claim.—Connecting the tension roller f, or its equivalent, with the let-off motion, to regulate the delivery of the warps by the arm or feeler Z.

I also claim the devices for holding the tension roller, or its equivalent, firmly at the beat of the lathe c.

I also claim the mode of constructing the belt cone d^1, and combining it with the shipping lever g^1.

I also claim the mode of connecting the friction brake with the shipper and stop motions of the loom.

And, finally, I claim releasing the said friction brake to allow the loom to be turned by hand, substantially as specified.

No. 14,971.—Robert Pilson and Stephen P. Heath.—*Improvement in Looms.*—Patented May 27, 1856.

By reference to fig. 1 the shuttle R R is shown as passing into the shuttle-box K^1, and in this movement the thread filling S S S is being taken off the bobbin t; and so long as the filling has the least tension upon it, the eye e of the balance drop is kept down nearly horizontal towards the bobbin, and thus the lower part or the toe f is kept from striking or tripping against the end a of the gravitating catch a^1 a^2, as the shuttle passes into the box K^1; and as the shuttle passes into the box it strikes the swell-spring m, which causes the rod i i to turn outward, thereby admitting the horizontal finger q to pass below the breast beam of the loom and the frog lever, and thus, so long as the filling is not exhausted, the shuttle will slide over the gravitating catch a a^1 a^2; and as the momentum of the shuttle is not disturbed, the shuttle readily acts against the swell-springs m m, causing them to perform their required office. As soon as the filling runs out, the balance drops down, its toe part f striking the gravitating catch a a^1 a^2, when the momentum of the shuttle is checked, which prevents the shuttle from completely passing into the box K^1, and which also counteracts the pressure of the shuttle against the swell-spring m, by which means no action is imparted to the stop-rod i i, whereby the horizontal finger q

instead of passing below the frog lever, strikes flush against the frog, whereby the band of the driving pulley is shifted.

Claim.—The combination of a balance catch in the shuttle in combination with the balance weight in the lathe acting from gravity also, for the purpose described.

No. 15,186.—LUCIUS J. KNOWLES.—*Improvement in Looms.*—Patented ne 24, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim the combination of the vibrator P and the angular notch O with either of the levers or jacks G of the harnesses so as to operate in connexion with the lifter rod I, because I am aware that such has been the subject or a portion of the invention for which a patent was granted to B. F. Rice on the 18th day of October, 1853, my invention being in part an improvement thereon and subordinate thereto; nor do I claim for operating the vibrator the mode described in the patent of the said Rice, wherein the pattern chain is represented as having an intermittent rotary motion while at work, and made to move the vibrator by the alternate actions of pins and hooks in a cam groove formed at the upper part of the vibrator, or in an arm projecting above its fulcrum; my improvement enabling the spring-arm not only to perform all the functions necessary to move the vibrator, but an additional one viz: that of allowing the toothed cylinder M to be continually revolved—important advantages both in the constructon and operation being gained thereby.

What I therefore *claim* is, the application of the spring R to the jack G, the vibrator P, and the tooth-cylinder M, substantially in manner and under their arrangement as described, in order to enable the cylinder M not only to effect the movements of the vibrator by the aid of its spring, but to be continuously rotated or maintained in constant and not intermittent rotary motion.

I also claim combining the double shuttle or drop-box C with one or the levers or jacks G, (operated as described,) by means substantially as herein before explained, viz: the rod S, the elevator U, the friction roller T, and slide-bar V, so that such drop-box may be operated by the toothed cylinder of the harness levers or jacks.

No. 15,295.—WILLIAM J. HORTSMANN.—*Improvement in Looms.*—Patented July 8, 1856.

This invention relates to a novel mode of applying and operating the pile wires in looms for weaving piled fabrics.

The operation for inserting and withdrawing the wires is performed in the following manner: During the opening of the shed, one or the other of the bars B B^1 is acted upon by the mechanism connected with the cords H H^1, and moved in such a direction as to draw its respective rod E or E^1 away from the other rod far enough for its respect-

e wire to clear the selvage threads of the warp, as is illustrated by e position of the rod E and wire D, shown in dotted lines, in figure 2. he wire D, before this operation, has been confined in the web, mediately in front of the position now occupied by D^1, by the shed ving crossed over it; but being now liberated, it is quickly thrown ckwards by the action of the spring *b* on its rod, till the shoulder *a* ikes the front guide *g*. Immediately after the rod has been driven ck by the spring, the bar B is liberated by its treadle ceasing to aw on its cord H, and left free to be acted upon by the spring G, hich pulls in the direction indicated by the arrow marked upon it, d thus carries the wire D into the now open shed. In this position is shown in full lines, in figure 2. The advance of the lay causes the ed to drive back the wire D and its rod E; and after the shed has ossed over it, the other wire D^1, which, during the above described eration of D, has been in the web, is drawn out by the movement of e bar B^1, produced by the traction of cord H^1. The wire D^1 now es through the same operation as that just described of the wire D; d after it has been carried forward by the reed, and had the shed ossed over it, the wire D is withdrawn, and its operation repeated. he object of the spring latches I I is to retain the bars E E and wires D^1; after having been driven forward, they serve to relieve the tufts pile threads of the tension produced by the springs *b b*, and also tain the wires in proper position at the commencement of the web. he rods E E are drawn away from the latches I I^1, and liberated lmost as soon as their respective bars B B^1 commence their movement withdraw the wires.

Claim.—The permanent attachment of the pile wires by one end to e independent sliding rods, which are carried each on one side of the arp, and controlled by springs in such a manner as to allow them an dependent movement longitudinally to the warp by transversely sliding ars B B; the said rods, bars, and springs being operated and operating combination with each other.

And I also claim the spring latches H, acting in combination with the ds E E^1 of the pile wires.

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o. 16,015.—Lucius J. Knowles.—*Improvement in Looms.*—Patented November 4, 1856.

The nature of this invention will be understood by reference to the aims and engravings,

The inventor says: I do not claim a single picker, operating in conxion with a movable series of shuttle boxes, and so as to pass from e box into another of the series, as occasion may require; but what I *aim* is a combination of a single picker staff D, pickers C, and boxes substantially as described, wherein there is a separate picker C for ch box of the series, and all such pickers are successively moved wards and operated by such single picker staff D during the operan of weaving with the shuttles of such series of boxes.

I would remark, that I by no means claim making a bar with a bend

or recess, as I am well aware that such, without any reference to a special use of said bend or recess, is no new invention.

But I *claim* the improvement in the picker staff when applied to operate a series of pickers, arranged in a set of shuttle-boxes, as described; the improvement consisting in the bend or recess G, applied to the picker staff, so as to enable it while operating a picker to pass by another picker under the former, and not move the said other picker in its box, the whole being substantially as specified.

And I also claim making the picker staff with a bend or recess *g*, or its equivalent, so as to enable it while operating a picker to pass by another picker, and not move the same in its box, the whole being substantially as specified.

No. 16,306.—BENJAMIN G. DAWLEY, assignor to Z. ALLEN.—*Improvement in Looms.*—Patented December 23, 1856.

By means of the intermediate wheel D, sustained by disk F, the two yarn beams A B are so connected together that the resistance of friction applied to plate F is distributed equally to the threads of the warp yarn wound on each of them, whereby both of the combined sections of the warp yarn are let off evenly to produce uniform selvages of the fabric, although there may be a difference in the circumference of the beams.

Claim.—The use of an intermediate wheel D, or wheels, to balance and regulate the tension in the delivery of the warp from two or more yarn beams combined together to form one web of wide cloth, substantially as described.

No. 16,271.—ANDREW L. FULLER.—*Improvement in Looms.*—Patented December 23, 1856.

This improvement relates to the manufacture of that class of fabrics in which two thicknesses are woven at once for a part of their length, then changing to a single thickness. The loom, in weaving the single part, is arranged to feed about twenty picks to the inch, with the lever C at full play; and when it is wished to change to double, lifting the fingers P by the guard R, the slide N is moved to the double pattern. This shifts the feed to a finer one of about fifty picks to the inch; and when the proper length is woveu, the pattern and slide are changed back again to single work.

The inventor says: I do not claim controlling the feed or take-up motion of a loom, as has heretofore been done, but only in connexion with the devices and arrangement described.

1st. I *claim* regulating or changing the feed, by governing the action of the lever C, by means of the graduating stop F, or its equivalent, in connexion with the change of slide and pattern, in the manner and for the purpose set forth and described, or any other substantially the same.

2d. The guard R, for lifting the fingers, when constructed and operating in the manner and for the purposes described.

3d. The flexible connexion between the stop F and the rod or slide, to give motion to the stop without moving the slide, as described.

No. 14,746.—SAMUEL T. THOMAS.—*Improvement in Looms for Weaving Bags.*—Patented April 22, 1856.

When the cam b^1 of the endless belt P is moved into contact with the stud a^1 of the lever *o*, it will move said lever so as to produce the elevation of the tripping-lever *x*, and to such an extent as to carry its arm *w* into the path of the cam *v* of the slide *t*. The slide *t* of the rotating cam K will thus be moved so as to throw the switch *r* across the groove *p*, whereby the stud *n* of the tri-armed lever I of cam K is turned from the groove *o* into the sideling groove *p*. While the stud of the tri-armed lever is passing from the sideling *p* into the groove *o*, the switch *q* extends across the groove *o*, so as to prevent the stud from being turned out of its proper course. As soon as the cam b^1 has passed beyond the stud a^1, the lever *x* will move by its own weight, so as to move the slide *t* back again, when the cam K moves the cam *v* into contact with the cam *w*. Thus, the switch *r* will be moved across the groove *p*, so as to cause the stud *n* to travel in the groove *o*. The stand S is jointed to two upright arms *ff*, extending from a rocker-shaft T, which latter is vibrated by means of an arm g^1 resting upon a cam h^1 on the main driving-shaft B.

Claim.—In combination with the compound cam K, the endless chain or belt P, and the mechanism for moving the switch *r*; the whole being arranged as above described, and for the purpose of determining the length of the sides, or when to form the bottom of the bags.

I also claim the arrangement by which a uniform tension of the warps is secured during the movements of the harnesses; or, in other words, I claim combining with the breast-roller or beam mechanism, by which the breast-roller or beam may be moved, with respect to the lay or harnesses, and during the movements of the latter, as specified.

No. 15,291.—JOHN GOULDING.—*Improvement in Jacquard Looms*—Patented July 8, 1856.

A detailed description of this invention would take up too much space to be given here.

Claim.—1st. The combination and arrangement of the mechanism described for operating the suspension and trap-boards in jacquard looms—that is to say, lever 81, sector 15, on shaft E, pulley 16, on shaft F, connected by a chain or belt having slots P and 12, suspension and trap-board 10 and 11, connected to the lifting rods by arms 51.

I claim the lever 89, (fig. 1,) or its equivalent, operated by the tappets 88, or their equivalents, so arranged as to lock the beams or straight and ground warps, as described.

I claim the mode of giving tension to the warp-threads or yarn taken

from bobbins, as shown in figure 2, by drawing it against itself or the bobbin or yarn which remains upon it, by means of a weight or its equivalent, but so arranged as to be lifted by the yarn when it is drawn, and release the bobbin, and allow it to turn until the yarn delivered permits the weight to descend again, and stop the bobbin by the friction of the weighted yarn against it.

I claim the traversing board 167, (fig. 3,) or its equivalent, arranged upon the knot cords, pile, or figuring harness below the warps, substantially as described, to bring down any single cord which may catch accidentally so as not to be brought down by its own weight.

I claim holding the parting wires 44, (figs. 1 and 3,) hanging them to a rod in rear of the heddles, and passing them between the upper and lower loops of the heddles.

I claim the trap-boards (fig. 4) pierced in the manner described, combined with the needles, constructed as described.

I claim the thimble or socket 120, (fig. 5,) or its equivalent, for receiving, stopping, and holding the shuttle in the box.

I claim the apparatus for holding and drawing up the filling or binding weft for the purpose of tightening the selvage, substantially as herein described, and represented in fig. 6.

I claim the arm 100, and score 121, (fig. 6,) constructed, arranged, and operated substantially as described, or their equivalents, to carry the weft thread from the fell at the edge of the cloth, nearly to where the pile warp crosses or makes an angle with the shed.

I am aware that a knife revolving on an endless belt has been used; I therefore do not claim this feature.

But I claim the application of the knife 175, in combination with its guides.

No. 15,717.—JAMES C. COOKE, assignor to THE HOTCHKISS AND MERRIMAN MANUFACTURING COMPANY.—*Improvement in Jacquard Looms.*—Patented September 9, 1856.

When the front cross-bar E is elevated, it will carry up such of the lifting-bars as have the hooks *b* in the position shown in fig. 2, and at b^1 shown in fig. 3, and will also carry up the side pieces which contain the diagonal slots C and D, which, by means of the connecting-rods *g*, will give a horizontal motion to the cylinder A, and, by means of the dog G, will give the cylinder an intermittent rotary motion, and by the operation of the dog H, cam K, and tracer L, will, at suitable times, give a vertical motion; all of which motions change the pattern as desired, by bringing different portions of the cylinder A to the needles *d*.

Claim.—The combination of the lifting-bar with the sliding-hook and rocking-piece for operating the needle.

2d. The use of a pattern cylinder having a reciprocating horizontal and vertical movement, combined with the movement of rotation on its axis, in the manner and for the purpose set forth.

No. 14,237.—ELIJAH HALL.—*Improvement in Power Looms.*—Patented February 12, 1856.

The nature of this improvement will be understood from an inspection of the engravings.

Figure 2 represents only one-half of a front view of the loom, the other half being similar to it.

Claim.—Locking and unlocking the reed by means of sliding bolts *g*, applied to the back of the lay, behind the reed, and operated by connexions with the connecting rods B B, by which the lay is driven, substantially as herein described.

No. 14,222.—ERASTUS B. BIGELOW.—*Improvement in Power Looms.*—Patented February 12, 1856.

When more warps are being taken up by the formation of the cloth than are being given out, the tension roller *f* will be thereby depressed, which through the medium of the regulating rod *l* will raise the pawl or feeler g^1, and allow the lever c^1 (provided with catches or steps f^1 f^1) an increased range of motion; then when more warps are being given out than are required, the said tension roller *f* rises and allows the pawl or feeler g^1 by engaging with some one of the lower catches f^1 f^1, to diminish the range of motion of the said lever c^1, thus adapting the delivery of the warps to the actual requirements in forming the cloth. In order that the feeler g^1 may properly engage with the catches f^1 f^1, to regulate the delivery of the warps as aforesaid, the cam *v* is so formed as to cause the lever c^1 to act to turn the let-off motion, (consisting of the let-off shaft *o* and worm wheel *z* gearing into cog wheel a^1 upon yarn beam *c*,) when the shed of the warps is open and the tension roller consequently at rest. The end of brake lever *r* and the projection *s* on the framing form together a sort of vise to gripe and hold the regulating rod *l* whenever the brake lever is brought into action.

Claim.—The combination of the tension roller *f*, the regulating rod *l*, and the brake or holding lever *r*, when co-operating substantially in the manner and for the purpose specified.

Also, regulating the action of the delivery motion by the combined action of the tension roller *f* or its equivalent. The regulating rod *l*, the pawl or feeler g^1, and the series of catches or stops f^1 f^1, substantially as specified.

Also, the method of holding the tension roller, (or its equivalent,) whereby the regulating rod *l* (or its equivalent) is griped, substantially as specified.

And, finally, the mode of constructing the brake or holding lever *r*, and combining it with the cam *v*, whereby the said holding lever *r* is made to do the double duty of turning the-let off motion shaft and holding the tension roller, (or its equivalent,) substantially in the manner and for the several purposes above set forth, and whereby, also, the apparatus which regulates the delivery motion is made to act thereon, when the shed is open and the tension roller at rest, substantially as specified.

No. 14,285.—JOHN JOHNSON.—*Improvement in Power Looms.*—Patented February 19, 1856.

The improvement for shedding the warp consists in elevating the pile warp above the ground or backing warp, so as to form two separate and distinct sheds at the same time, one above the other, as seen in fig. 2. This enables the wires to be put in above the ground warp, under the upper shed, while the shuttle is thrown through the lower shed, and thus obviate the necessity of missing a pick for the purpose of inserting the wire, as heretofore required. To effect this, the harness containing the pile warp is made to rise higher than the ground warp, having a double elevation, so as to leave sufficient space to pass the wire through. The shuttle and wire then pass through their separate sheds at the same instant, without interference with each other or stoppage of the shuttle.

The wires *f* are attached to endless bands *a*, which bands receive a reciprocating movement at proper intervals, for the purpose of advancing and withdrawing the wires at the proper time. The motions of the belts are such that one wire will be inserted when the other is withdrawn. The two wires are inserted alternately from either side of the work, as will be seen from the engravings.

The inventor says: I do not claim a double shed; but what I do *claim* as my invention is first inserting the wires at the same instant the shuttle is thrown, by which I save a pick by the employment therefor of a double shed in the manner set forth.

I also claim the vibrating belt, or its equivalent, to which the wires are connected, arranged and combined substantially as herein set forth.

No. 14,358.—JAMES GREENHALGH, Sr.—*Improvement in Power Looms.*—Patented March 4, 1856.

A detailed description of this machine would take up too much space to be given here.

Claim.—1st. In combination with the method of balancing the boxes, the method of giving motion to the shaft *f* to operate the boxes, by means of two notched bars *j* j^1, which are geared with opposite sides of the pinion *e* on the said shaft, and are suspended from levers *t* t^1, which are operated upon by a pattern cylinder in such a manner as to raise either of the said bars as may be necessary to bring its teeth into engagement with a dog *i*, or i^1, suitably arranged and operated to give the requisite motion to the bar.

2d. The method of giving the shuttle-boxes a single or double movement, as may be required by the pattern, by employing two hooks, *i* i^1, or their equivalents, having unequal movements; arranging the said hooks, or their equivalents, with their points at different elevations, and employing long and short studs in the pattern cylinder, or its equivalent, to raise the rack bars *j* j^1, which give motion to the boxes, to a position to be caught only by the hook having the shorter movement, or to a position to be caught by the hook having the longer movement, substantially as herein described.

3d. Controlling the order of succession of the movements of the wo pickers to make them act in regular alternate succession or otherrise, as may be desirable, by means of a pattern cylinder, or its equivlent, acting upon the mechanism by which movement is transmitted om the driving-shaft to the pickers in such a manner as to throw or tain either picker in gear with the said shaft, and the other one out f gear, substantially as herein described.

4th. The combination of the levers J J^1 through which the cams on he driving-shaft operate the pickers with the sliding-shaft K, the lever , and the V-shaped stud 7; the said lever 9 being moved from side to ide by the pattern cylinder, and the said V-shaped stud receiving a uitable motion to operate on the said lever 9, substantially as herein lescribed.

No. 14,644.—ANDREW ALLEN.—*Improvement in Power Looms.*—Patented April 15, 1856.

The wrist *k* gives the rod F, with its pin *h*, a movement forth and back during every revolution of the treading-shaft H, causing the pin *h* o advance into and retreat from one of the spaces h^1 h^2 h^3 h^4 between he fingers of the hand E, and by that means either to raise or lower or leave stationary the lifting-rod C, according to space which the in enters, and to the previous position of the lever D.

Claim.—The combination of the fork *c* c^1 on the lifting-lever D, the tationary hand E, and the sliding-pin *h*, or its equivalent, the whole perating substantially as herein described.

No. 16,037.—ALEXANDER SMITH and HALCYON SKINNER.—*Improvement in Power Looms.*—Patented November 4, 1856.

A detailed description of this invention would take up too much pace to be given here.

Claim.—1st. Mounting the yarns for forming the ranges of tufts in arcels on a series of spools, or equivalents therefor, in the order required for producing the design or pattern required, so that each spool, r the equivalent therefor, may be brought in succession to the required osition for each range, substantially as described.

2d. The mode of operation, substantially as described, by which he spool frame required at each operation is brought down in close roximity with the tufting warps, and then carried out of the way of he lay when performing its operation, as described.

3d. The mode of operation by which the tufts of yarn are introduced and applied to the tufting warps, substantially as described.

4th. The mode of operation by which the tufts are cut off from the yarns after they have been introduced and applied to the warps, substantially as described.

5th. The mode of operation by which the tufts are carried to the required place in the fabric by the combined action of the reed and plate, or any equivalent therefor, as described.

6th. And in combination with the several modes of operation by which the tufts are introduced, the employment of the heddle motion, substantially as described, for binding and holding the said tufts by the warp threads.

No. 14,292.—Rensselaer Reynolds.—*Improvement in Temples for Looms.*—Patented February 19, 1856.

When the lay beats up, the stud *s* strikes against the downward projection *e*, and drives the temple forward with it from position 2 into position 3. This is a very little way, just enough to make the forward end *f* of the arm D run under the roller B, to open the jaws sufficiently to release the cloth. When the lay recedes, the temple follows it, (the receding motion of the latter being caused by the tendency of the spring E to raise up the arm D, the pressure of the arm under the roller tending to throw it out,) and the rear jaws *h* close upon the cloth.

Claim.—The arrangement and gear, substantially as herein shown and described, of the shank D of the opening and closing jaw with the stop or roller B, in combination with the closing and receding spring E, for the operation together essentially as specified.

No. 14,988.—William W. Wier and William Grover.—*Improvement in Self-Acting Mules.*—Patented May 27, 1856.

As the spindles commence to revolve and the carriage to move out, the third faller C is drawn up by the yarn, when the points of the cam E, formed by the meeting of the concentric and eccentric parts, pass the centres of the rolls *i i*, and they being drawn against the cam by the spring S, the cam and parts attached to shaft C are immediately thrown into their proper position. As the carriage continues to move outward the latch *f* is brought in contact with the stand *g*, depressing the latch and lever H until the latch will pass under the stand, and bringing down the counter-faller to the proper position for it, while the carriage is running out. When the carriage is out and the spindles have backed off, the front faller is put down to wind the yarn on the spindles as the carriage runs in; and by the action of the cam W, against the pin in the arm *x*, C is also put down and remains on the yarn until the carriage returns to the position shown in the drawings. The counter-faller is controlled by the yarn until the carriage is nearly in, at which time the latch, being elevated, is brought in contact with the stand *g*, depressing the latch and bringing the stand and lever G in contact, whereby the lever is held down so as to just clear the cam F when the front faller rises, but allowing lever H and counter-faller to rise sufficient to bring the faller-wire level with the tops of the spindles. As soon as the carriage starts out, the lever is released from the stand *g*, and is then held down by the cam F.

Claim.—The application to mules of the faller C, herein denominated a third faller, operated by the mechanism herein described, or the

equivalent thereof, when used in combination with a faller and counter-faller, substantially as described and for the purpose specified. Also, the combination and arrangement of the levers G and H and latch *f*, substantially as described and for the purpose specified.

No. 15,245 —JOHN MCMULLEN.—*Improvement in Netting Machines.*—Patented July 1, 1856.

The nature of this invention consists in conveying the net as it comes from the machine between and partially around two pressure rollers R R^1, and in effecting the tightening between those rollers and the cloth beam B. The invention further consists in so connecting a lever-bar *d*, under which the net passes on leaving the machine, with the pawl *p* driving the cloth beam B, that the tightening of the net between the machine and the lever-bar, beyond the slackness requisite for the formation of the knots, will stop the rotation of the cloth beam.

Claim.—Finishing the meshes of the net and tightening the knots by the simultaneous longitudinal and lateral strain of pressure rollers and cloth beam, operating as specified, the relative position of said rollers and beam being automatically preserved.

No. 15,738.—HERVEY LAW.—*Machine for Cutting Paper.*—Patented September 16, 1856.

A block of paper being placed upon the platform C, and motion being communicated to the shaft of the knife B, said motion is transmitted to the mechanism by the band J. As the platform C rises by the action of the eccentrics D D^1, the upper lever F^1 of the toggles is carried up and made by the cranks to assume a vertical position; and, in doing so, exerts an upward pressure on the platform C, and, by means of the lower lever F, a downward pressure on the clamping-frame E, which allows the platform C to rise sufficiently to clamp the paper between itself and the upper cross piece *c* of the clamping-frame. As soon as the toggles assume a vertical motion, the clamping-frame E commences to rise with the platform C, and the paper is fed to the knife B. The toggles are caused to exert a pressure between the lower cross-bar *d* and the platform, during the feeding and cutting operation, by the pintles *j* of the cranks G being confined and moving up n the straight portion of the grooves *k*.

Claim.—The combination of the rising and falling platform C and clamping-frame E, by means of toggles F F^1, said toggles having cranks G G^1 connected with them, the pintles of which work in curved grooves, or are otherwise actuated, substantially as and for the purposes set forth.

No. 14,804.—WILLIAM CLARKE.—*Improvement in Processes for Making Paper from Straw.*—Patented May 6, 1856.

The inventor says: I have found by experiment that coal-tar will neutralize the lime used, which heretofore has been of great in-

jury to moulds and felts used in the manufacture of paper. The coal-tar prepares the material to be made into paper to receive colors such as may be desired, which it has heretofore been found impossible to do in consequence of the alkalis remaining in the material.

He says further: What I claim is not the use of lime, or other alkalis used in the preparation of vegetable material used in the manufacture of paper.

But I *claim* the boiling of coal-tar in with the straw, or other vegetable material for the manufacture of paper, in the manner and form herein set forth, and for other similar purposes, or purposes substantially the same.

No. 14,621.—P. H. WAIT.—*Improvement in the Felt-Guide of Paper Machines.*—Patented April 8, 1856.

As the felt deviates from its course in the centre of the cylinder, its edges bear against the guide rolls F F, causing the connecting rod G to move together with the levers E E, and displacing the roll D, as shown by dotted lines, which works the felt back to its proper position.

The inventor says: I do not claim the roll D nor the use of a roll to guide the felt, for this has been previously used in various ways.

But I *claim* the employment and use of two crooked levers E E, hung upon pivots L L, and operated by connecting rod G and guide-pins or friction-rollers F F, against which the felt bears, working the rod G and levers E E, changing the position of the roll D, by action of the felt, substantially as here shown for the purpose set forth.

No. 15,582.—ISRAEL KINSEY.—*Improvement in Feeding Pulp to Paper-Making Machines.*—Patented October 7, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Regulating the flow of pulp for making paper upon the web or cylinder of the paper machine by the pressure of the pulp in a box A, receiving its supply of pulp from the stuff chest E, through the aperture *f* in the trunk R, and discharging it through an adjustable aperture *p* below the surface of the pulp in the box A, the pressure being regulated and kept uniform by the height of the pulp *h* in the box A, which is adjusted and maintained by means of a valve *e* fitting the aperture *f*, operated by a float B, substantially as described, the combination of the several parts forming a self-acting regulator, for the purpose of making paper of equal thickness.

No. 16,278.—JOSEPH KINGSLAND, Jr.—*Improvement in Paper Pulp Engine.*—Patented December 23, 1856.

The stuff is fed into the cylinder C through the pipe F, and when reduced to pulp by the action of disk E on the end of the cylinder, it is discharged through pipe G, and the level of the nozzle of this pipe can

be adjusted relative to the head of water on the feed pipe F, whereby the effective head of pressure is varied and the velocity of the feed current adjusted.

Claim.—The method of regulating the feeding of the fibre to the grinder by varying the hydraulic pressure by means of an adjustable discharging nozzle or its equivalent, as set forth.

No. 16,239.—JOSEPH KINGSLAND, Jr.—*Improvement in Machinery for Grinding Paper Pulp.*—Patented December 16, 1856.

Rotary motion being communicated to the shaft D, the mixed half stuff and water may be let into the feed-pipe F from a tank above, and the hydraulic pressure will force it into the cylinder C through the space *e* between the disk E and the outer head *d*, round the periphery of disk E and through the space *f* to the orifice of the discharge pipe G, where it will leave the cylinder passing through said discharge pipe into a suitable receptacle.

Claim.—The combination of the revolving grinding disk, having play in the direction of its axis, with the fixed grinding disks on either side of it, whereby the revolving disk is free to adjust itself at such varying relative distances from the fixed disks as may be required to prevent the girder from clogging, and to adapt it to working properly upon different qualities of fibre, and under different rates of feeding, substantially as set forth.

Also, the arrangement of the feeding and discharging orifices of the grinder and its grinding surfaces, as described, so that the motion of the revolving disk will facilitate the entrance of the fibre into the grinder, tend to retard its discharge therefrom until properly reduced, and to keep it while in at those places where the grinding action is most energetic, substantially as set forth.

No. 16,316.—JOSEPH KINGSLAND, Jr.—*Improvement in the Process of Grinding Paper Pulp.*—Patented December 23, 1856.

Motion being imparted to the driving-shaft D, the half stuff is fed into the cylinder *e* through pipe F from a tank above, and operated upon by the grinding disk E, which reduces it to pulp. The centrifugal motion of disk E will co-operate with the hydraulic pressure under which the pulp is fed to cylinder C, to force said pulp through the grinding cylinder and out through discharge-pipe G.

Claim.—The process of reducing fibrous matter in water to pulp, by grinding it under hydraulic pressure, which creates a current that feeds the fibre into the grinder, and removes it therefrom as fast as it is sufficiently reduced, and renders the feeding independent of the grinding, substantially as set forth.

No. 14,218.—WILLIAM ADAMSON.—*Improvement in Machinery for Cutting Sand Paper.*—Patented February 12, 1856. Antedated August 12, 1855.

The paper P is slit as it passes between the slitting rollers A and B, the effect being similar to the action of a pair of shears. As the grit in the paper wears the edges of the rollers away, they are pressed against other by means of spring S, and thus the edges always wear themselves smooth and square.

Claim.—The arrangement and combination of the slitting drums A and B in the manner and for the purposes as herein set forth.

No. 16,162.—VESPASIAN O. BALCOM and CHARLES H. HILL.—*Improvement in Engines for Grinding Paper-Stock.*—Patented December 2, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The revolving pulp-tub E, or its mechanical equivalent, in combination with the grooved grinding roller G revolved thereon, at a greater or different speed than this tub.

Also, the combination of the revolving pulp-tub E and friction or evening roller J, arranged and operated essentially in the manner and for the purpose set forth.

No. 14,165.—JOSEPH N. PITTS.—*Improvement in Machines for Cutting Flocks and Paper-Stock.*—Patented January 29, 1856.

The material to be cut is placed within the drum B. The cylinders F are rotated rapidly by pulleys and belts, and drum B is rotated slowly. The material passes down between the two cylinders F F, and between the knives *f* on said cylinders and the cutters I I, and is cut by them. The material is fed to the cylinders F F by the rotation of the drum, the knives catching the material and drawing it downward, so that it passes between the knives and cutters. The cutters I are made yielding by means of springs *i*, and can be adjusted by means of nuts *j*.

Claim.—The combination of the cylinders F F, provided with spiral knives *f*, cutters I I attached to the adjustable and elastic or yielding bars G G, and the drum B; the above parts being arranged as shown, for the purpose specified.

No. 14,938.—WILLIAM R. DUTCHER, assignor to HARVEY CHURCH.—*Improvement in Machinery for making Rope and Cordage.*—Patented May 20, 1856.

The inventor says: I do not claim the wheels 7 and 8, and other gearing for giving a larger or smaller amount of twist to the strands, as

this is the subject of a patent granted to Messrs. Harris, Stott, & Richmond, October 31, 1854; neither do I claim rubbing down or sizing the yarn.

I do not claim regulating the tension of warps or strands by means of a wire or cord in a grooved disc, neither do I claim a belt or strap running around bobbins, as they stand in a circular range, for the purpose of rotating such bobbins; neither do I claim a revolving tube passing the strands, nor a plate or lay-up block through which the strands pass; but I am not aware that a pipe has ever before been fitted above each lay-up block in such a manner as to regulate the tension of the yarn by adjusting said pipe nearer to or further from the said lay-up block. I do not claim the grooved cone *t*, as this has been used in rope-walks and machinery; also a tube has been used in connexion with such cone, therefore I do not claim the same, but limit my claim as hereafter specified to the peculiar construction of the parts.

I do not claim leading the yarn or sliver off to one side of the enclosing can; but where bobbins are made use of, there must be sufficient distance between the bobbin and the hole through which the yarn passes to allow said yarn to pass off freely. Hence in cases where the yarn is led towards the centre of the circular range of bobbins, that range has to be so large, to provide for the above requirements, that the machines become heavy and cumbersome; therefore I lead off the yarns towards the opposite side of the range to where the bobbin stands, which provides sufficient distance to cause the yarn to run off with a uniform tension from the top and bottom of the bobbins, and thereby said bobbins can be brought into less space. The holes in the arms thus do not become regulators of the tension by their size, but provide for the yarn being drawn off in such a manner as not to be varied in its tension by any varying angle of the yarn in passing off the bobbins.

But I *claim*, 1st. The arrangement of the gear wheels *h* and *i*, pinions B and 14, plate *k*, and ring 12, (figure 3,) for sustaining and revolving the creel shafts *l*.

2d. I claim the adjustable friction wire or cord passing around in the disks 16 of the circular ranges of bobbins, thereby simultaneously regulating all the yarns in each range to precisely the same tension (figure 4).

3d. I claim the adjustable tube 18, over the centre of the lay-up block *g*, for the purpose of regulating by its proximity to said lay-up block the tension of the various yarns composing the strands, (figure 5).

4th. The construction of the lay-up cap S, on the end of shaft *c*, fitted to receive the moveable cone *t* and adjustable tube 24, so that the tube and cone can be conveniently changed to adapt the parts to laying up different sized rope or cordage (figure 6).

5th. Leading the yarn off from the bobbins to a hole or guide on the arms 43, or their equivalents on the opposite side, or nearly so, of the circular ranges of bobbins in the creel (figure 7).

No. 14,194.—Oliver S. Hazard and Isaac Peck.—*Improvement in Machinery for Making Rope.*—Patented February 5, 1856.

A difficulty in rope-making always occurs in piecing up the strands from time to time as the cans are exhausted, or whenever the sliver breaks; for, before such occurrence can be seen, the end will have passed up above the rollers. Then the splicing must be done above the rollers, and then the strand, being loose, must be tightened by being drawn down to bring the strands even. But the sliver has no strength below the rollers, and cannot be drawn back through the guide. To avoid this difficulty, the inventor applies the trumpet-shaped guide Z, which compresses the sliver, and is suspended on the sliver, extending up through the tubular shaft close to the rollers; and when the strand is to be tightened he allows the trumpet to drop back by opening the rollers, and when the machine is again put in motion the rollers draw the trumpet again up to its place.

Claim.—The movable self-adjusting trumpet guide Z, as above described.

No. 15,326.—Thomas G. Boone.—*Improvement in Rope Machine.*—Patented July 15, 1856.

The strands from the several spindles H, H^1, H^2, having been led through the conducting tubes O, O^1, O^2, over the laying block and through the hollow upper journal *d* of the laying spindle or rotating frame to the capstans W, rotary motion is imparted to the drum C and capstan W. The laying of the rope is performed by the revolution of the conducting tubes O, O^1, O^2, around the axis of the laying spindle. The revolution of the strands to produce the lay of the rope being effected between the unlaid ends and the laid portions, while those parts are stationary, involves the necessity of the strands receiving each a separate rotary motion in a direction contrary to the lay, as imparted by the rotation of the tubes O, O^1, O^2, on their own axes; otherwise, the parts of the strands between which the revolution to perform the lay takes place and the unlaid ends would receive an additional twist, and the parts above between that and the laid portions would receive a diminution of twist.

Claim.—1st. The arrangement of the strand spindles with their axes all in the same line with each other, and with the axis of the laying spindle, substantially as herein described, or in an equivalent manner, whereby I am enabled to put in a forehard, equal in turn to that of the lay, without rotating the strand spindles.

2d. The arrangement of gearing, whereby, during the rotation of the laying spindle, the strand spindles may be kept stationary, or have a slight rotary motion imparted to them, either in the same or in a contrary direction with the laying spindle, consisting of the stationary gear 1, the shafts L, L, L, with their gears M, M, M, and N, N, N, and the gears J, J, J, and K, K, on the strand spindles, all operating substantially as herein described.

3d. The conducting tubes O, O, O, furnished with rollers *i*, *i*, *i*, or

their equivalents, revolving around the axis of the laying-spindle and spool spindles, and rotating at the same time on their own axes, operating in continuation with the above described arrangement of strand spindles, to take out the first additional twist received by the strand, and carry it forward to produce a forehard in the rope.

No. 15,623.—Simon F. Stanton, assignor to J. M. and S. F. Stanton.—*Improvement in Machinery for Filling Seine Needles.*—Patented August 26, 1856.

Motion being imparted to the apparatus from the shaft M, a vibrating motion is given to the toothed sector F, cogged wheel E, arm D, and needle H. The cams *a* and *b* in the pulleys N and O impart to the shaft T and arm U a vibrating motion at the same time that the cam Y imparts to the arm U a vertical vibrating motion which corresponds to the vibrating motion of the needle H. By means of this arrangement the end V of the arm U, which carries the twine, is carried across the point *d* of the needle so as to carry the twine around said point *d* while the end V is in the needle; and as the arm U and needle H vibrate in opposite directions in the same time, the twine is carried alternately across the score *f* of the needle and around the spindle *d*, first in one direction and then in the other, so as to fill the needle with twine as the machine is operated.

Claim.—Giving the needles a vibrating motion by devices such as described, or their equivalents, in combination with the arms which deliver the twine, vibrated perpendicularly and traversed horizontally by devices such as described, or their equivalents, so as to deliver the twine across the score and around the tongue of the needle, substantially as described.

No. 14,283.—Seth P. Chapin.—*Improvement in Sewing Guides.*—Patented February 19, 1856.

The cloth (represented by slightly waved lines) is drawn along between the overlapping projection *g* of plate A^1 and the part of plate A projecting under said overlapping portion of plate A^1; and then it passes between the overlapping projection *g* of plate A and that part of plate A^1 which lies under said overlapping projection of plate A. In the central section (see fig. 5) the edge of the cloth stands vertical, as seen at *j*.

By arranging two pairs of such plates as shown in fig. 7, the cloth is made to turn twice, and in the central part *i* the edge is properly doubled for being hemmed by the needle of a sewing machine. F is the spring which holds the cloth in the rear of the plates.

The inventor says: I do not claim a device invented by S. C. Blodgett, for cording umbrella covers, in the use of which the edge of the cloth in a partially turned state is guided into a slot, and a turn over the cord completed by passing under the presser.

I *claim* the method of forming hems on the edge of flexible materials by means of folding guides made to turn the edge 180° or more, substantially as described.

And in combination with guides, substantially as described, I also claim the employment of a spring (F, fig. 13) or analogous device:

1st. To hold and to guide a piece of cloth by an edge or plait.

2d. To cause the cloth to follow the guides, placed between it and the needle, with certainty.

3d. To keep the cloth on a stretch while the stitch is being drawn.

No. 14,022.—PHINEAS L. SLAYTON.—*Improvement in Sewing Machine.*—Patented January 1, 1856.

This machine is intended to sew and embroider cloth and also to work button-holes. The shuttle-box B is rotary; the shuttle C is made to run as near the circumference of the box as possible, see fig. 2, and the parts by which it is operated are represented in fig. 1, and in detached views figs. 3 and 4; the shuttle is operated by these arrangements in such a manner that there is no possibility of missing a stitch. Every time the shuttle makes one revolution the thread from the cloth would either twist or untwist, which would cause the thread to have so much twist as to kink and prevent it from working, or make it too slack; to overcome this, the arrangement as represented in figs. 5, 6, 7, 8, and 9, is made use of.

Figures 10, 11, and 12 show the arrangement of the feeding apparatus: fig. 10 is a side view, fig. 11 a front view towards the shuttle-box, fig. 12 a rear view of the same. The needle-frame E, with all that is attached to it, and the plates F^1, G^1, H^1, with everything attached to them, form a separate sliding frame which moves in a lateral direction of the cloth by means of cam I^2, which is brought in contact with the end of H^1 at every revolution of the shaft, and as there are two stitches made at each revolution of the shaft; there is a stitch made at each end of the motion; carrying the needle-arm and shuttle-box with it. This motion is regulated by patterns M^1, M^3, M^4, figs. 13, 14, and 15, of whatever shape will suit the figure to be worked, which is attached to the lower end of the frame, as shown in fig. 1.

Claim.—What I claim as my invention and desire to secure by letters patent, is—

1st. The horizontal motion of the needle and shuttle-box combined, at any required distance from the cloth.

2d. The combination of mechanism by which the pattern receives motion and operates to control the movements of the needle and shuttle, consisting of the worm wheel L and screw, or their equivalents, of which the screw or their first mover is furnished with arms Z^1, Z^1, operated upon by a lever O^1 on a shaft S^1 which receives a continuous rotary motion, substantially as herein described.

3d. Though I do not claim a circular shuttle-box, or raceway and revolving shuttle, I claim furnishing the revolving shuttle with a re-

volving bobbin or ball F, containing the thread and spool N, by which he twist of the thread remains unchanged, or their equivalents.

4th. I claim the manner of connecting the fly F with the feeding-ook H as it is operated upon by the thread as the shuttle passes hrough the loop to prevent missing stitches.

5th. The feeding apparatus attached to the revolving turn-table I[8] and otherwise arranged and combined, substantially as herein described.

No. 14,141.—JOHN O'NEIL.—*Improvement in Sewing Machines.*—Patented January 22, 1856.

The nature of this improvement will be understood from the claim nd engravings.

The inventor says: I do not claim a feed bar, or one divided into a umber of points; nor do I claim a roughened surface of any kind; ut I *claim* the broad chisel-edged piece *e*, which takes hold of several f the warp or weft threads, and thus feeds along the material without iercing or penetrating the cloth, when such edge is of sufficient width o catch or hold several threads of the fabric being sewed, substantially s set forth.

No. 14,207.—ALFRED SWINGLE, assignor to ELMER TOWNSEND.—*Improvement in Sewing Machines.*—Patented February 5, 1856.

z represents the thread which, by means of this improvement, receives proper and uniform tension. The improvement also serves to prevent the wax from being scraped from the thread, as takes place when waxed thread is carried and pressed between two flat surfaces.

The inventor says: I do not claim a tension apparatus composed of spring bearing against a fixed surface or another spring, the thread eing drawn between the two; but I do *claim*, as a tension apparatus, he combination of a rotary grooved roller M and a pressure roller O, perating by means of a spring S, or its equivalent, essentially as specified; the same when a wax thread is used, producing advantages bstantially as herein before stated.

No. 14,324.—T. J. W. ROBERTSON.—*Improvement in Sewing Machines.*—Patented February 26, 1856.

When the looper *b* is free, it rests upon the fixed rest *d*. The needle and thread, when descending, pass close by the point of the looper, ut so that as the formation of the loop is commenced by the slackening f the thread when the needle commences rising, the thread will pass nder the point of the looper, and as the loop is drawn up through the oth by the continued movement of the needle, it catches the said oint and swings it up (see fig. 4) nearly close to the cloth A, a little ehind where the needle passes through, leading the loop to such a osition that the needle must pass through in its next descent. The

looper is then liberated by the loop slipping off it, and falls by gravitation to its first position on the rest *d*. The guide *e* serves to lead the opening loop over the point of the looper.

Claim.—The looper *b*, constructed, applied, and operated substantially in the manner set forth.

No. 14,393.—HENRY R. DAVID.—*Improvement in Sewing Machines.*—Patented March 11, 1856.

The nature of this invention consists in providing the needle F with a groove 1 in its under side leading from the eye *r* near the point of the needle to a second eye 2, which passes the thread up through the upper part *g* of the grove *i* containing the needle.

Claim.—The method herein described and shown of leading the thread to avoid wear or derangement thereto, by combining with the slide D, in the before mentioned patent of David M. Smith, of 16th April, 1850, and on which this is an improvement, the needle F constructed with the two eyes and the groove to act in the manner and for the purposes specified.

No. 14,433.—WILLIAM C. WATSON, assignor to IRA W. GREGORY.—*Improvement in Sewing Machines.*—Patented March 11, 1856.

The device for preventing the loop forming on both sides of the needle, consists of a narrow strip of metal fixed in a slot cut in the post o^1, by a spring or tongue *r*, which tends to project it beyond the face of the same. This tongue has a groove on its face, and lies directly in the path of the needle in its descent. The top is rounded off so that the needle in striking will press the tongue back, and slide down in the groove. The tension clamp consists of a pair of nippers S, which are made to close upon the thread by means of a wedge-shaped bar, (s^1,) which is thrust between the legs of the same and moved back and forth by a cam *t*.

Claim.—1st. The tongue or spring *r* in combination with the needle for insuring the formation of loops on one side only as described.

2d. The gripper for seizing the thread and holding it until the needle has entered the cloth, thus securing the last stitch against the slacking up as described. The whole being constructed and operating substantially as set forth herein.

No. 14,475.—ISAAC M. SINGER.—*Improvement in Sewing Machines.*—Patented March 18, 1856.

The two feeding wheels *d* and d^1 are moved with different velocities in order either to distend or to pucker up the cloth. This is effected by the spur wheels *i* and another wheel *j*, which turns on the fulcrum pin *k* of the lever *h*, which latter carries a spring ratchet head *l* that en-

gages the cogs of the wheel J. The lever is vibrated in the usual manner, and thus an intermittent motion is imparted to the wheels.

Claim.—The method, substantially as herein described, of distending or gathering up the cloth or other substance where the needle operates upon it, to form the seam by combining in a sewing machine two distinct feeding wheels, or their equivalents, moving with a differential motion substantially as described.

No. 15,396.—ALFRED SWINGLE, assignor to ELMER TOWNSEND.—*Improvement in Sewing Machines.*—Patented July 22, 1856.

The thread is taken from bobbin X and passed through the thread carrier H of the hook B, the material to be sewed being sustained on the top of the support F. After the awl C has descended and punched a hole through the work it rises, and the hook B follows up straight through said hole, and immediately after the barb has been elevated above the work the hook is turned a little towards the thread carrier H, in order that during the next downward movement it may seize the thread. On the descent of the hook B the thread is drawn in the form of a loop through the work, the hook descending entirely below the horizontal needle D, which next passes into the loop and there remains long enough to permit the hook B to rise and pass between said needle and the thread carried by it. The horizontal needle next falls back, having looped its thread around the shank of the hook B. Next the hook descends as before, drawing a loop down with it through the cloth and the loop previously formed upon its shank.

Claim.—The employment of a hook in connexion with the looping needle, and arranging said hook so that it shall pass into the cloth or material from the same side of it on which the looping needle works or is situated.

No. 15,469.—SHERBURN C. BLODGETT.—*Improvement in Sewing Machines.*—Patented August 5, 1856.—Antedated February 5, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—1st. The arrangement of the crimping notch *g*, in the shuttle, for the purpose of drawing the slack thread from the needle, and thus preventing the loop of thread from being taken up a second time, as above described.

2d. The employment of a series of pawls or drivers around the circumference of a discoidal or circular shuttle, whereby the driving force is applied equally or nearly so, through a considerable arc of the circumference of such shuttle.

3d. The mode of driving the disk shuttle at its circumference, by means of a hollow pulley or sleeve B revolving around a fixed shaft or axis C.

4th. The mode of giving motion to the needle arm E, and the feed-rollers, by direct connexion with the same sleeve B, or revolving shaft,

to which the drawers *d* are attached, which drive the disk shuttle, substantially as described.

5th. The arrangement of the cams C C^1 and lever k^1, for operating the slide *k*, in combination with the cam *e* and arm H, for operating the pressure pad, in the manner and for the purpose as herein before described.

No. 15,470.—Joseph Bond, Jr.—*Improvement in Sewing Machines.*—Patented August 5, 1856.

The driver E being set in motion, the teeth *e* on the top of the cylindrical portion *d* of the driver will, on account of the eccentricity of the latter with the stationary shaft D, enter the recesses of the spool case G, two teeth being in said orifices at a time; the other teeth as the driver revolves clearing the piece K, as well as the needle P, thus causing the spool case G to revolve within its holder, and at the same time leaving ample room for the operation of the needle and the lever L. The lever L is connected to the stationary spool case G in such a manner that by the action of the cam *n* in the driver E on the arm *l* of said lever, the hooked arm *m* catches the needle thread and holds the same while it is carried over the spool by means of a nose *g* on the latter, the thread being released from the hook when the spool case is in a proper position for the loop to escape.

Claim.—1st. The driving of the spool case G, by placing the latter on a stationary spool case holder, within a cylindrical driver, having any convenient number of internal teeth, the driver being situated eccentrically with the holder, so that the internal teeth of the former may catch into the recesses in the edge of the spool case, and cause the same to revolve, at the same time leaving a space between the holder and the driver on the side opposite to that where the teeth act on the spool case, for the play of the needle and its thread.

2d. The hooked lever L, in combination with the cam *n*, on the driver E, arranged and operating substantially in the manner and for the purpose set forth.

No. 15,635.—A. F. Johnson, assignor to himself and F. A. Houghton.—*Improvement in Sewing Machines.*—Patented August 26, 1856.

In this sewing machine a positive motion is imparted to the feeding plate *i* by means of cam *q*, fig. 3, operating upon arm *k*, which is attached to a rocking shaft *n*, fig. 1, and connecting rod *p*, attached to the vertical shaft *o*. By the vertical up-and-down motion of the feeding plate *i i*, the latter with the cloth is brought against the spring clamp *u*. The distance that the feeding plate traverses, and consequently the length of stitch, is regulated by varying the position of either end of the connecting rod *p* with regard to the centre of the cam *q*, which can be effected by operating the screw *w* in the female screw *v*.

The shuttle a^1 is operated by an elliptical shuttle thrower b^1, turning on pivot c^1, and actuated by a cam d^1 on the driving shaft *b*. By

reference to fig. 2, it will be seen that when the cam d^1 bears on the part of the shuttle thrower b^1 nearest its pivot c^1, the shuttle a^1 will be moved through a longer space in the same time, or will be moved quicker than when the cam d^1 is at the most remote point from its pivot c^1, thereby causing the shuttle to travel faster in passing through the loop than in going back.

The inventor says: I do not claim the feed motion described; and although eccentric shuttle throwers have been used before, I cannot find that the pivoted swinging ellipse or a thrower has been so combined with a cam which operates it as to get a quicker motion of the shuttle when the cam operates near the point and is throwing the shuttle forward through the loop than when it is drawing it back.

I *claim* the combination of a swinging ellipse, as a shuttle thrower hung on a pivot, with a cam on the driving or other rotating shaft, so operating with said swinging ellipse as that when the cam is bearing upon it near its pivot it shall move the shuttle faster or through a larger space in the same time than when it is bearing upon the other parts, for the several purposes set forth.

2d. I claim the combination of the rocker shaft and its arm K K and connecting rod with the grooved cam, operating together for giving the required motions to the feeding plate, substantially as described.

3d. I claim the means employed for varying the length of the feed motion, and consequently the length of the stitch, at pleasure, the same consisting of a screw shaft working in the vertical hollow shaft that moves the rocker shaft, and raising or lowering a loose collar to which the connecting rod $p\ p$ is attached.

No. 15,695.—CHARLES R. GARDNER.—*Improvement in Sewing Machines.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—The sharp pointed needle having a flexible beard, as described, for sewing in woven, felted, or other close fabrics, in the manner set forth.

2d. The adjustable slide C, so arranged as to close the beard of any sized needle that may be used in the machine.

3d. Also the guide G, consisting of the thread channel C^1 and the needle passage with the side thereof either slightly inclined, as described, or provided at the top with the inclined groove J, and so operating that the feed motion given to the cloth shall carry the thread in proper position to be caught by the hook or beard of the needle, as described.

4th. Also the folding plate E or its mechanical equivalent for the purpose specified.

I do not claim running several folds or corrugations on the needle at the same time, as is done in machines for sewing with a running stitch. Nor do I claim sewing along parallel with the fold, as is done in hem-

ming, binding, and forming welts, where the length of the stitch is parallel with the fold.

I *claim* sewing with a machine through one fold or corrugation of the material at a time, the cloth being fed along at right angles, or nearly so, to the line of the fold, substantially as described.

No. 16,026.—S. H. Roper.—*Improvement in Sewing Machines.*—Patented November 4, 1856.

A detailed description of this invention would take up too much space to be given here; the principal features of it will be understood by reference to the claim and engravings.

Claim.—1st. A thread guide which guides the thread into the eye of the needle by means of the projection *y* and the thread holder *m*, forming a thread clamp, and griping and holding the thread between them while the thread guide with its clamp revolves until the thread is wrapped partly round it and stretched across the aperture therein; and then also by means of the thread guide with the thread thus held moving laterally, until in this manner and by means of these rotary and lateral motions the thread is effectually guided into the eye of the needle.

2d. The working of eyelet holes in cloth or other material by means of a rotary feed motion combined with the slotted tube *v* and two needles, all substantially as described.

No. 16,030.—Isaac M. Singer.—*Improvement in Sewing Machines.*—Patented November 4, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventor says: I do not wish to be understood as limiting my claim of invention to the precise form and construction of parts, as these may be varied without changing the principle of my invention.

I *claim* operating the needle to give it the required reciprocating motions, substantially such as described, by a crank-pin or roller on a rotating shaft, acting in a cam groove, substantially such as described, whereby the required motions are imparted to the needle with much less extent of motion of the crank-pin or roller in the cam groove, and consequently less friction, than if the cam groove were on the shaft, and the pin or roller on the needle-carrier, as described.

I also claim projecting the operative part of the surface of the feeding apparatus through the surface of the table, substantially as described, so that such feeding surface may act on a portion of the under surface of the material to give the required feeding motion to space the stitches, while the other portions of the said material slide on the table which answers the purpose of stripping the said material from the feeding surface, and to cover and protect the mechanism which operates the feeder, as set forth.

I also claim imparting the feeding motion to the feeder, to present

he material to be sewed to the action of the needle for spacing the titches, by griping the periphery thereof, or any equivalent therefor, by a griping lever, substantially as described, in contradistinction to he action of the pawl or hand, catching on to ratchet teeth, whereby he extent of the feeding motion may be adjusted and varied to any legree, instead of being restricted by the size of ratchet teeth, and whereby also I avoid the wear and liability to derangement incident o the use of a ratchet motion, as set forth.

And, lastly, I claim in combination with the feeder attaching the presser for controlling the material to be sewed, and holding it to the surface of the feeder to a slide or equivalent therefor, substantially as described, so that the plane of its under surface shall always bear the same relations to the plane of the table in a line at, or nearly at, right angles to the line of the seam, whether the material to be sewed be thick or thin, and for the purpose set forth.

No. 16,136.—WILLIAM C. WATSON, assignor to Himself, GEORGE H. WOOSTER, and MORRIS KNIGHT.—*Improvement in Sewing Machines.*—Patented November 25, 1856.

As the needle descends through the cloth and commences to rise, pushing out thereby the thread which lies at the inner side of the needle, the hook *a* is in the position as shown in fig. 3. The cam B then strikes the tail of the lever connected with A, which is moved in the direction of the arrow. The hook *a* catches the thread and draws the loop off to one side, then, turning round, it spreads the loop as shown in fig. 4. The needle, in descending, passes through the groove in the brace-plate *i*, placed on the opposite side of the hook, where it is braced by the side of the groove, and steadied against the lateral pull of the hook, at the same time that the feed finger k^1 returns to be ready for a new grip upon the cloth; and as it pushes along against the frictional pressure of spring K, the cloth is kept from going with it by the needle holding it in place, the brace-plate also serving to steady it against this action as well as against the pull of the hook.

Claim.—The revolving and reciprocating looping-hook, constructed and operating substantially as described.

Also, the inclined and grooved brace-plate *i*, so placed beneath the cloth as to deflect the lower end of the needle to one side of its path, whereby its vibrations are prevented, and it is secured from breakage by the lateral pulls, as set forth.

No. 16,234.—JAMES E. A. GIBBS.—*Improvement in Sewing Machines.*—Patented December 16, 1856.

By turning the crank the shuttle *b* is thrown back, and the needle I descends. Half a revolution being completed, the arm H begins to rise, but does not lift the needle-bar *g* in the first part of its motion; that is done by the recoil of spring a^2 against pin c^2. This forms the loop in the vertical groove *o*; the needle-bar stops for an instant of

time, while the arm H is moving from the lower to the upper shoulder of the neck. At this moment the shuttle *b* darts through the loop, the needle recommences its upward motion, and draws the shuttle thread up to the centre of the cloth, and forms the stitch; in the mean time the feed motion is put in operation, and the clamp R is moved up another stitch.

The inventor says: I *claim*, 1st. Feeding up the thread to the needle by connecting the needle-thread with the cloth-feed motion, or by giving the needle-thread an independent feed motion, so that there shall be sufficient thread, and no more, at each stitch fed into the needle to form the stitch, thereby causing the needle to draw the shuttle thread into the cloth, and never above it, for the purpose of insuring the meeting of the loops or locks within the body of the cloth.

2d. I do not claim straight clamp feeders for the purpose of feeding the cloth, as they are not new.

But I *claim* fastening the cloth upon a slotted table, moving with a rectilinear motion by means of a slotted curved spring, the slots in both spring and table corresponding with each other, and holding the cloth on both sides of the seam.

No. 16,237.—LEWIS JENNINGS.—*Improvement in Sewing Machines.*—Patented December 16, 1856.

The principal features of this invention will be understood by reference to the claims and engravings; a detailed description thereof would take up too much space to be given here.

The inventor says: I do not claim the belaying double-looped stitch, described in the patent of W. H. Johnson, dated March 7, 1854.

I *claim*, 1st, the formation of the seam from a single thread by passing each loop, after it has passed through the cloth, or material to be sewed, through its immediate successor, and round the second one which succeeds it, by means of a needle and a "thumb and finger," operating substantially as described.

2d. The combination of the arm F to which the thumb and finger *b c* are attached, the pivot *f*, the slotted arm *i*, the fixed pin *j*, and the lever G, or its equivalent, substantially as and for the purpose set forth.

No. 16,281.—WILLIAM R. LANDFEAR.—*Improvement in Sewing Machines.*—Patented December 23, 1856.

As the shaft C is rotated, the crank D on descending draws down the needle-bar F G H, carrying the needle through the cloth, which is on plate O, the bar sliding on fulcrum J. As the lower end of the bar is carried around by the crank, the needle I draws the cloth forward a short distance for a stitch; at the same time the crank E carries the shuttle-guide K forward, carrying the shuttle L through between the needle and the thread which it carries. The crank D now raises the needle and draws up the loop of thread through which the

shuttle has passed, while the shuttle descends and draws the other thread tight.

The inventor says: I do not claim the forming of the seam by means of the needle and shuttle, or the feeding of the cloth by the needle.

I *claim*, first, the manner of regulating the length of stitch by raising and lowering the fulcrum J, thereby changing the relative lengths of the two arms of the lever G, as described.

I *claim* the manner of combining the shuttle-guide K with the crank E and fulcrum N, for the purpose of giving the shuttle a downward motion when the stitch is tightened, in the manner set forth.

No. 16,321.—JEROME B. WOODRUFF.—*Improvement in Sewing Machines.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventor says: I *claim*, 1st, the construction of a feed-bar *g* sliding in a dovetail or slotted guide and moved by a lever E, connected with the feed-bar *g* by a swivel joint, or its equivalent, so as always to move the feed-bar *g* in a plane with the material being sewed, the feed-bar *g* being moved back the distance required for the length of the stitch while the needle is in the material, and when the needle is withdrawn is moved forward, carrying the material therewith.

2d. The arrangement of a series of pins *r* through which the needle thread is laced, for the purpose of giving a uniformity of tension without affecting its twist, or their equivalent.

3d. I am aware that needle-bars have been made to vibrate in the arc of a circle, which I do not claim.

But I *claim* a balanced needle-bar for sewing machines when constructed in the form of a segment of a circle operating the shuttle-driver by one end direct, and carrying the needle by the other end, when the whole of said bar F forms the arc of a circle, of which the point of suspension is the centre, as described.

4th. A slotted shuttle-driver P, the same being operated direct from the needle-bar, and so arranged that the shuttle may pass through the loop of the needle thread in its proper time, gradually decreasing its speed and stopping at or about the same time with the needle, as described, or its equivalent.

5th. I do not claim carrying the shuttle back and forth by two pins, one at the heel and one at the point, independent of a shuttle-carrier; for this has been done by Messrs. Blodgett & Lerow, and patented to them.

I *claim* carrying the shuttle back and forth by a single pin *o*, as described.

No. 16,315.—A. F. JOHNSON and F. A. HOUGHTON.—*Improvement in Sewing Machines.*—Patented December 23, 1856.

By the arrangement of the parts, as stated in the second claim, the brake *u* is caused to operate upon the circumference of the wheel X,

and thus to regulate the speed of the machine when the speed of fan-wheel a^1 increases beyond the desired rate of the machine.

The inventors say: We do not make any claim now to the manner of vibrating the needle-arm by means of an eccentric stud working in the slotted arm.

But we *claim* the described arrangement of parts of a spring power mechanism, when combined with a sewing machine, and located in a box forming the pedestal of said machine.

We also claim the device by which the machinery is made self-regulating as to speed, consisting of the lever U and brake *u* in combination with the fan-wheel a^1 attached to the loose collar c^1, in the manner described, and operating as set forth.

No. 14,956.—WILLIAM O. GROVER.—*Improvement in Cases for Sewing Machines.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—Arranging a box or case for a sewing machine, so that, when open, the box shall constitute the bed for the machine to be operated upon, and hanging the machine thereto to facilitate oiling, cleansing, and repairs, without removing it from the box; and the peculiar adaptation of the handle F, so that it may be pushed out when required to drive the machine, and when returned within the box shall serve to prevent motion of the parts whilst the machine is being transported.

No. 15,402.—BURRITT C. BOYES, assignor to Himself and HERMAN DERCUM.—*Improvement in Folding-Guides of Sewing Machines.*—Patented July 22, 1856.

The cloth E passes through the helical rings C D, fig. 2, and under the guard, and at a sufficient distance from the orifice *a* for the penetration of the needle; the cloth, by passing through said rings, is folded or hemmed, as represented in fig. 2.

Claim.—I do not confine myself to the precise shape of the metal plate B, as shown, to the precise arrangement of the guard $b\,b^1$ in respect to the plate, or to the number of helical or slit rings shown.

Nor do I claim a device for which a patent was granted to Seth P. Chapin, and in which hems are formed on the edges of flexible materials, by means of folding-guides made to turn the edge 180 deg. or more.

But I *claim* the employment of one or more helical or slit rings for the purpose of forming on the edges of fabrics single or double hems, or for forming plaits in the middle of fabrics previous to the said hems or plaits being submitted to the action of the needle and thread of sewing machines.

No. 15,020.—Isaac M. Singer.—*Improvement in Sewing Machines for Binding Hats.*—Patented June 3, 1856.

Between the folding *g* and the gauge *f* is a bifurcated spring *i*, one branch of which serves to make pressure on the binding on the rim of the hat, and the other to extend over the pressure-pad *e*, so that when the pressure-pad is lifted the spring will be lifted also.

The binding is carried alternately in opposite directions, around the folds of the wire *k*, to keep the binding under a state of tension as it is drawn by the feed-motion. The binding is guided to the folding-tube *g* by means of the guides *l l*.

The spring *n* bears against the body of the hat, so that its tension will tend to push the hat in a direction the reverse of the feed-motion. The tension of the spring *n* being very slight, so as not to overcome the bight of the pressure-pad on the rim when the needle is drawn out, and yet being sufficient to prevent the body of the hat from being moved towards the back of the table by the feed-motion, the effect of the feed-motion will be to turn the hat and to keep the edge of the rim against the face of the gauge to insure the making of the range of stitches at a regular distance from the edge.

Claim.—The method of turning the hat by the action of the spring, or its equivalent, in combination with the feed-motion acting on the rim, and the gauge against which the edge of the rim bears.

And I also claim the mode of regulating the tension of the binding, and smoothing out the plaits and kinks by passing it around the several folds of a spring.

No. 16,120.—A. F. Johnson.—*Improvement in Stitches for Sewing Machines.*—Patented November 25, 1856.

The thread is carried in a loop form by the needle, both in passing up through the cloth and down through the same, while the shuttle carries the thread in a single strand through the cloth, thereby tying or knotting the thread, as represented in the engraving, and in such a manner that it cannot possibly be drawn out.

Claim.—Making a stitch of a single thread by throwing a shuttle and thread through a loop formed from the shuttle thread, as described, thereby tying or knotting each stitch, for the purpose of uniting pieces of cloth or other material to be sewed.

No. 15,535.—Thomas W. Taylor.—*Improvement in Spinning Frames.*—Patented August 12, 1856.

The neck of the flyer F is of sufficient length to receive the bearings in the upper and lower side of a box B, running lengthwise of the frame, through which passes a shaft L, communicating motion by bevel wheels to a spur-gear A, which, meshing into pinions *a* upon the necks of the flyers F, drives both front and back lines of flyers, instead of using two shafts for driving both lines, as is the case in the machines used heretofore.

Claim.—The construction, arrangement, and driving of the flyers of fly-frames, in combination with either a live or dead bobbin spindle, as the case may be, substantially as set forth.

No. 16,028.—JOEL SMITH.—*Improvement in Throstle Spinning Machines.*—Patented November 4, 1856.

Motion is imparted to this apparatus through the main shaft A to the conical pulley F, thence by belt to pulley E; pulley G drives pulleys I and H, and screw K, which operates worm-wheel L, thence shaft M, pinion O and pinion P. The pins Q, on pinion P, tilt lever R, which actuates pawl T, and ratchet-wheel U, and screw V, thus causing the nut W to move on said screw, and the arms attached to nut W, cause the belt which passes around the pulleys E and F to traverse upon said cones, so as to communicate from the shaft which drives the spindles to the rollers a motion constantly varying in speed, and that in ratio corresponding to the increase of the diameter of the bobbin while being filled.

Claim.—Regulating the twist of the yarn in ring-spinning machines by communicating a gradually accelerated motion, proportionate to the gradually increasing diameter of the bobbins, to the rolls which give out the yarn to the bobbins, substantially in the manner and for the purposes set forth.

No. 14,482.—LYMAN WIGHT.—*Improvement in Spinning Wheels.*—Patented March 18, 1856.

The hand-wheel 6 transmits motion to the spindle 20 by means of the pulley 9. The attendant splices the roll to a thread in the spindle 20, and by pressing his foot on the treadle 14, drives the spindle back and draws out the thread. The weight 8 at the end of the lever 12 forces the spindle back again.

Claim.—Attaching the spindle of a hand-spinning wheel to a vibrating pendulum, and operating the same, substantially in the manner and for the purpose set forth.

No. 1,1531.—HENRY S. HOUGHTON.—*Improvement in Brushes for Cleaning Travellers.*—Patented June 17, 1856.

The cleaner consists of a piece A to hold the brush G. The cleaner is connected to the piece E, which rests on the ring rail C. These pieces are adjusted so that the ends of the brush shall be lightly hit by the traveller H in passing the front of each ring, and catch the waste fibres without retarding the traveller.

The inventor says: I do not claim the use of a brush to clean a throstle, whether automatically operated or otherwise, when the live or dead spindle alone is used; but I *claim* the application of a brush, when constructed and operated substantially as described, to the delicate movement of the ring traveller, so as to rapidly clean the same, without breaking down the thread.

No. 14,858.—Lucius Dimock and Ira Dimock.—*Improvement in Machinery for Trebling Single Thread.*—Patented May 13, 1856.

Before starting, the carriage F is run up near shaft G, and the threads from the bobbins are arranged as seen in figure 3, after which the carriage is allowed to run back, which leaves the threads 1, 2, 3 stationary, while the hitch-pin h^1 draws off the thread from B, and runs out with a double thread. The motion is then reversed, and the spool C takes up 1, 2, 3, while 2 and 3 slips from *g*, and enchains the thread passing through said arm. As the carriage arrives within a very short distance of the shaft G, the said shaft with its arm *g* is thrown back (figure 1) by means of arm *k* and stud j^2, and the shaft H is turned by means of lever *n*, pin s^1, and pin *p*, so that the hitching arm *h* descends far enough to throw the loop over the end of the conducting arm, (figure 1,) and the portion of threads 1 4 strikes the conducting arm, which causes it to slip over the top of the hitch-pin. The loop passes hen down to the bottom of the conducting arm, and the hitch-pin is :aused to fly up by the escape of lever *n*, past the pin *p*, and thereby o hitch on it the portion of thread issuing from the conducting arm, ;o that when the directions of the rotation of the shaft J, and of the notion of the chains I I are changed, the hitch-pin runs back with that ɔortion of the thread doubled, and thus commences a repetition of the ooping and enchaining operation.

Claim.—The rock-shaft G, with a hollow conducting arm *g*, to conduct each strand thread from its bobbin to the hitching-pin and its equivalent, and to effect the enchaining of the loops.

2d. The attachment of the hitching-pin or pins h^1 to the arm or arms *h* of a rock-shaft, for the purpose of forming and disengaging the loops.

3d. The arrangement and combination of the rock-shaft G having a hollow conducting arm or arms *g*, the travelling carriage F carrying the rock-shaft H and its vibrating hitching arms *h*, the strand bobbins B B, and the trebled thread spools C C.

No. 14,969.—Marcus Ormsbee.—*Improvement in Winding Thread from Skeins.*—Patented May 27, 1856.

The hooks are to be caught into the dress on the knees, and by separating the knees the spools are placed at the exact distance apart required to tighten the skein, which may then be wound without difficulty.

Claim.—The arrangement of the hooks *a*, the spools *c*, and the elastic strap B.

No. 16,164.—Andrew L. Fuller.—*Improvement in Covering Thread with Wool.*—Patented December 2, 1856.

The spindle F is attached to the frame of a card to hold the bobbin of the thread which forms the core of this covered thread, and the end of said thread is passed into the condenser C and between the rollers

D; the fibres of the last roll A are delivered by the comb B, the motion of which curls the fibres around the core, and the rolls D draw the whole through as condensed and perfect, and the core will be found in the centre of the thread.

The inventor says: I do not claim the weaving of quilted, wadded, or padded goods, nor the use of wadding in the loom. Neither do I claim making the sliver of two materials in order to spin a finer round a coarser, or *vice versa*, as I am aware that is old; but I *claim* the described mode of placing the core in the sliver and covering it by the combined action of the comb B and condenser C, so as to produce the sliver above described, and this I claim whether a twist be given to the sliver or not.

No. 15,308.—SAMUEL TAYLOR.—*Improvement in Brushes for Dressing Warps.*—Patented July 8, 1856.

The nature of this invention will be understood by reference to the claim and illustration.

Claim.—The improved warp-dressing brush as made with the external ends of its bristles cut slantwise, or bevelled with respect to their stocks, for the purpose of enabling the warps to enter the brush with more facility than would be the case were the points cut off square in the usual way.

No. 14,061.—GEORGE L. JENKS.—*Improvement in Machinery for Making Weavers' Harness.*—Patented January 8, 1856.

This is an improvement upon J. S. Winser's machine, patented January 2, 1855. S^1 is one of the hollow studs through which pass the twines for forming the harness bands b^7. Fig. 2 shows the adjustment for a different width of harness. The head-pieces a a^1 (of which there may be two or more for each stud) carry the stems u^6, upon which are formed the knots for connecting the heddles to the harness bands. With the head-piece a the studs are essentially like Winser's. By having studs a^1 with arms of different lengths, the distance between the two stems u^6 and between the two bands b^7, and consequently the length of the heddle and width of the harness, can be increased. When a pair of head-pieces a^1 is employed, it is necessary, in order that the points of the stems at their inner ends may pass the outer ends of the head pieces, that the depressors should have a movement about in the dotted lines 23 and 26. To produce this movement the packing piece 22 is taken from hole 21, and the pieces 28 and 27 are secured to the sides of the depressor bar X.

Claim.—1st. The within described method of adapting the machine to the making of harness of different widths by the application of movable head-pieces a a^1 of different forms to the studs S^1 and its fellow, which form the end or outside studs of the range, and the application to the single depressors of a movable packing piece 22 and blocks 27 and 28, or other variable guides, the whole operating substantially as herein described.

2d. Guiding the operations of the arms which carry the fingers 29, employed in forming the loops and knots, to produce the eyes of the heddles by means of a pin 37 working in a slot in plate 33, which is made variable by swinging on a stud 35, whereby the movement of the finger may be varied to any extent necessary, without varying its position when in contact with its respective stud S^2 or S^4, substantially as herein described.

No. 16,029.—JOHN C. SMITH.—*Improvements in Weaving Long Warps.*—Patented November 4, 1856.

The yarn is taken from the reel through the perforated plate B and over the roller C, thence down under and between the rollers D, thence between the rollers I and L, and is laid in layers on the box P. The yarn is taken from the box P up over top roller A, and around middle roller A and forward to roller D, down to roller E, and through the take-up motion F F, and through the harness in the usual manner, and made fast in the ordinary way, as is usually done previous to commencing the weaving operation.

The inventor says: I do not claim a carriage travelling at right angles with a warping frame, carrying the beam so that the warp may be laid in a regular succession of layers as received thereon, for I am aware that such is not new. Nor do I claim dispensing with a warp beam in manufacturing cloth, for I am aware that cloth has been woven with yarns for the warp taken directly from spools. But I *claim* a box arranged substantially in the manner and operated by the mechanism described, in combination with the arrangement for dispensing with the warp beam as described, for the purpose of laying the warp in a regular smooth succession of layers evenly, that the box may give out the warp free from twists or tangles.

No. 15,415.—ALGERNON L. COLE.—*Improvement in Harness for Weaving Seamless Bags.*—Patented July 29, 1856.

The nature of this invention consists in providing each leaf of harness with an additional row of eyes K to the one row now in use, thereby dispensing with an additional set of cams. One set of cams only is used to spring two distinct warps, four leaves of harness being required to weave a twilled or mixed twilled bag, and only two leaves being required to weave a plain bag. And with this kind of harness two distinct warps can be woven into plain or twilled cloth in the same loom, one warp being above the other, and two sets of shuttle boxes, one being placed above the other and stationary.

Claim.—The application to weavers' harnesses of the addition of one row of heddle eyes, making two rows instead of one upon each leaf of harness, as described, or any other substantially the same.

No. 16,248.—THOMAS NELSON.—*Improvement in Machinery for Weaving Shade Cord.*—Patented December 16, 1856.

The cord to be covered is passed up through D, P, and R, to roller S, and thereto attached; the ends of the threads from the spools are attached to the cord just below R, and the woof threads, being carried up through V, are also attached below R. The machinery being as represented in the engraving, it will be seen that car H^1 is down, and that the shuttle U will pass over it; on starting the machine, car H^2, which is already half way up, rises so that the shuttle U passes under it as the shuttle, revolving with the eccentrics A M N, passes on. Car H^3 is and continues down, the woof passing over it; but car H^4 begins to rise, and when the woof has reached it has risen so that the shuttle passes under it. The same operation in a reversed direction takes place in regard to shuttle U^2, these combined operations causing the passage of the shuttle between an up and down thread in succession.

Claim.—The arrangement of the inclined planes C C G G around a circle, and divided from each other by the chasm or pathway Z, the same being intended as the course or track of the spool cars. The arrangement of the spool cars in combination with the eccentrics M and N, which operate the cars in the rear of the inclined planes by means of pens or equivalent apparatus passing from the cars through slots in the planes. The arrangement of carriers or shuttles U U^2 attached to the eccentrics passing through the chasm Z, between the upper and lower planes, and traversing circularly and delivering the woof or filling between the threads of the warp, as they change their relative positions, by the alternate vibrations and depressions of the spool cars.

No. 14,463.—JOHN MCCRONE.—*Improvement in Cone Tubes for Winding-Frames.*—Patented March 18, 1856.

L represents the flanges which project through a slot in the socket, for the purpose of preventing the yarn from wearing against the socket. N is a projection on the said socket, with a button attached to it for the purpose of securing the cone in its place. B is a zinc lining inserted between the cone and the metal socket.

laim.—The use of the crystal as a material for the cones or trumpets used for shaping and consolidating yarn of woollen, cotton, or other materials on bobbins.

No. 15,856.—ANDREW W. PUTNAM.—*Improvement in Machinery for Cleaning Wool.*

The wool, being spread on the apron *b*, is carried by means of the feed-rollers *e* to the main picking-cylinder *h*, where it is operated upon by the teeth *i*, when the coarser impurities drop through the open concave *j*, and the wool is carried over the closed concave K, seized by the serrated plates o of the burring cylinder *q*, and carried over the con-

ave *l*, down and over the adjustable burring bar *q*, which separates all oreign matter attached to the fibres. As the plates *o* carry the wool ıpward, the blast from the fan *u* acts upon these, and discharges the vool to the rear of the machine.

Claim.—The combination of the main picker-cylinder and the open ınd closed concave, in combination with the burring cylinder, arranged ınd operating substantially as described.

I *claim* the burring cylinder in combination with the adjustable burring bar or bars, arranged and operating substantially as described, for stripping the burrs and other foreign substances on the fibres, as described.

No. 15,268.—WILLIAM H. WALTON, assignor to Himself and J. E. WINANTS.—*Improvement in Machinery for Combing Wool.*—Patented July 1, 1856.

The teeth of the combs *d d* take hold of the fibre projecting from the feed-rollers *b b*, which fibre is brought in contact with a cylinder apparatus *g i i²* for working the fibre. as the brushes *f* behind the combs pass the cylinders *g*, its ends strike the curved rails *c c c* affixed to the frame, which rails throw the brush outward and force the fibres on to the teeth of the small cylinders; after the comb has passed, the brush falls back, and the comb *d*, as it reaches point W, revolves on its axis *x* so as to reverse the position of the teeth. This motion is effected by means of a small pinion *n* gearing into rack a^1, that slides in the line of the axis *x* by means of rod c^1, lever B, and cam *x*. The comb, being reversed, passes onward into contact with the teeth on an endless chain comb, where the fibre is deposited. The clearing bar *m* is operated by means of rods *w w*, and cam *u*.

Claim.—1st. The reversing comb *d d*, arranged substantially as described, for conveying the wool from the feed-rollers *b b* past the cylinders and on to the endless chain-comb, as set forth.

Further, in combination with the above mentioned reversing comb, the brush *f* in the rear thereof, for the purpose specified.

Also, the clearing-bar *m* for clearing the fibres of wool from the cylinder i^2 before the comb reverses, when combined with the reversing comb.

No. 14,120.—ABNER J. SUTHERLAND.—*Improvement in Yarn-Dressing Frames.*—Patented January 15, 1856.

When the beam is full of yarn B, the lever E *y* is pressed down, and consequently the short arm *x* is also down and causes the spring D to exert its greatest force on the friction strap C.

The inventor says: I *claim* the use and application of a lever or its equivalent, one end of which presses on the surface of the yarn wound about the beam, and to the other end the friction spring is attached for the purpose and substantially as herein described.

I am aware that James and John Haworth obtained a patent in 1848

for a contrivance acting on the same principle as that above described; but that contrivance was applicable only to looms, and could not, without material modification, be applied to dressers.

I do not claim the use of my let-off motion as applied to looms, but only as applied to dressers and similar machines excepting looms.

I do not claim the friction strap with the spiral spring, as they have been used before.

No. 16,117.—GEORGE G. HENRY.—*Improvement in Manufacturing Cotton Yarns.*—Patented November 25, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not wish to be understood as limiting myself to any precise sequence of machinery after the combined gin and lap machines, for it is obvious that my invention may be applied to any preferred machinery for manufacturing cotton yarns.

I am aware that it has been proposed to spin cotton yarns directly from the gin, as in Brant's patent of 1823, and by other modes. This I do not claim.

But I *claim* the combination of the gin and preparation, substantially in the manner and for the purposes described, that is to say, the arrangement of the cotton gin in immediate connexion with, and to operate in combination with the spreader or lap machine of any desired construction, so that the gin and spreader combined shall operate in a regular sequence with the carding and drawing, and other spinning machinery, substantially as set forth.

No. 14,815.—MOSES A. JOHNSON.—*Improvement in Manufacturing Felted Yarns.*—Patented May 6, 1856.

Steam is admitted into the rubber R a short time before starting, and the spools of roving S being laid upon the drum D, the several ends are separated as for spinning; each end is then introduced between the rollers V V and twist belt *g g*, and thence entered a short distance under the back edge of the rubber; the machine being started, the apron, rolls &c., carry the yarn forward beneath the rubber, which, having a motion at right angles to that of the apron *y* and vibrating, has the effect of rolling and effectually felting the roving into a smooth yarn, and it is finally delivered and taken up by the reel N. The rubber is vibrated by means of the connecting rods H H and cranks on crank-shaft F.

The inventor says: I do not claim the use of an endless apron, draw-rolls, twist-belt, reel, or self-adjusting belt, each being in itself old and well known.

But I *claim* the arrangement of the steam rubber R in relation to, and in combination with the endless apron *y y*.

IV.—CHEMICAL PROCESSES.

No. 14,722.—Eben Norton Horsford.—*Improvement in preparing Phosphoric Acid as a substitute for other Solid Acids.*—Patented April 22, 1856.

The pasty mass of phosphoric acid prepared in the usual manner is leached, and the extract together with the addition of white bone ashes concentrated and cooled. Wheaten flour and potato starch are then added in succession and the whole mixed, after which it should turn out friable, so that it may be passed through a sieve. When tried, the preparation should be packed in close boxes to prevent the absorption of moisture.

Claim.—Pulverulent phosphoric acid, for neutralizing alkaline bases, and producing carbonic acid at will from a mixture of this pulverulent acid with alkaline carbonates upon the addition of moisture or heat, or both.

No. 15,222.—William T. Clough.—*Improvement in Concentrating Apparatus for Sulphuric Acid.*—Patented July 1, 1856.

Lead is dissolved by hot sulphuric acid, but not by cold; the lead tank *e* is therefore not liable to be dissolved, as the heated acid in the furnace *a* becomes nearly cold before reaching the lead, after passing through the tiles and sand *a b c d.* The radiated heat from the under side of the arch H evaporates the watery particles from the sulphuric acid.

Claim.—The construction of a furnace A so that the sulphuric acid will not affect or injure the lead or mineral tank or pan during the process of concentration, by means of a hot surface being placed above the liquor, substantially as described in the above specification.

No. 15,662.—James Mackintire.—*Improvement in Ale and Beer Coolers.*—Patented September 2, 1856.

The ale to be cooled passes from pan A through the passages F, and is discharged through the escape pipe *g*. The water for cooling said ale is pumped through pipe U into vessel I, and passes through the passages *b, k, l,* pipes *m,* and passages *p* and *n,* into the spout L, the gate *o* serving to regulate the discharge of said water.

The inventor says: I do not claim constructing an ale or liquid-cooler, so that the heated liquid, while descending in a channel between plates, shall be cooled by cooler currents of water or liquid made to flow in a contrary direction against the outer surface of said plates or channel, as described.

Nor do I claim arranging the water and ale channels in a zig-zag

serpentine, or equivalent manner, with respect to one another, as described, so as to produce an effect as stated.

But I *claim* the combination of the passages *p n* and gate *o* with the ale and water chambers, pipes *m m*, and zig-zag passages; the same being for the purpose, or to accomplish results as set forth.

No. 15,957.—GEORGE THOMPSON.—*Improvement in Devices for Putting up Caustic Alkalies.*—Patented October 21, 1856.

This invention consists in wrapping the cakes of caustic soda in paper impregnated by a preparation of beeswax and rosin; by which said paper is rendered impervious, so as to protect said soda from the action of the atmosphere.

Claim.—The mode described, or its equivalent, of protecting small packages of caustic soda or potash from the action of the atmosphere, in the manner and for the purposes described.

No. 15,804.—JOHN FIDLER.—*Improvement in Journal-Box Alloys.*—Patented September 30, 1856.

This alloy is composed of six parts of copper and four parts of block-tin melted together; and to each pound of this product is then added nine pounds of zinc, which, when melted and mixed with the above metals, will serve as an alloy for journal boxes.

Claim.—The composition of the ingredients named, in the specified mode and proportions.

No. 15,934.—HENRY DAVIS POCHIN.—*Improvement in Preparing Clay for Alum Making.*—Patented October 21, 1856. England, January 30, 1855.

The nature of this invention will be understood by reference to the claim.

Claim.—The calcining of china, clay, or other aluminous minerals, with the carbonaceous substances, in the manner described, by which the alumina is brought into a condition to be easily acted upon by strong sulphuric and other acids, without adding thereto any substance injurious to the quality of the resulting compound; and the use of aluminous cake, obtained in manner described, in manufacturing the aluminous mordants used by calico printers and dyers, and in various other processes used by dyers, and in the preparation of white leather, in the process termed tawing; also in the manufacture of paper, as a substitute for alum and the ordinary sulphate of alumina, as well as for the purpose of deodorizing and disinfecting decomposing animal or vegetable matters, and for the preparation of the ordinary sulphate of alumina and alums of commerce.

No. 14,925.—PHILIP PERDEW and ALEXANDER W. BRINKERHOFF.—*Improvement in Ash-Leaching Apparatus.*—Patented May 20, 1856.

The inventors say: We do not claim the boiling of ashes in a pan, neither do we intend to limit ourselves to the precise form and dimensions of the apparatus; for it is evident that they may both be slightly varied without altering the result.

But we *claim* the general plan and arrangement by which we are enabled to have one continued operation, instead of heating up for one charge, and cooling off and then shovelling out by hand.

We *claim* the pan *a*, combined with its reservoir, figure 2, immediately below it, having its opening through its bottom covered with grating and canvass, or its equivalent, leaving a space on each side of the reservoir, where the bottom shall be exposed to the fire in order to keep the ashes in constant ebullition, and having its conductor *d*, by which all the ashes may be discharged from time to time by the flowing of water without hand labor. (We hereby disclaim all pans, pots, or kettles that do not answer this description.)

No. 15,956.—WILLIAM THOMAS, JR.—*Improvement in Stove Blacking.*—Patented October 21, 1856.

This stove blacking is composed of two ounces of powdered graphite, one and a half ounces of lamp black, one ounce of asphaltum varnish, half an ounce of oxyde of manganese, and one and a half gills of common spirits of turpentine; these are mixed together until thoroughly incorporated, when the compound thus formed may be applied to the surface of stoves.

Claim.—The described compound to be used for coating stoves and metallic surfaces, to impart to them a very durable polish, and to protect them more effectually from rust, as set forth.

No. 15,983.—JOHN PHYFE.—*Ivory-Bleaching Apparatus.*—Patente October 28, 1856.

The table A being exposed to the direct rays of the sun, the pieces of ivory to be bleached are placed upon table A. The rays of the sun, being then admitted through the glass cover D to the ivory, pass through the ivory and through the glass table A to the reflector B, by which they are thrown back again through the glass table and the ivory.

The inventor says: I do not claim the exclusion of air from the ivory during the bleaching process, and I do not confine myself to the construction of the apparatus in such a manner as to exclude the air during the process, or to any particular construction of the apparatus.

But I *claim* the bleaching of ivory by exposure to the rays of the sun on a glass table, with a reflector below it, substantially as described.

No. 15,590.—A. C. Breckenridge, assignor to Julius Pratt & Co.—*Improvement in Frames for Bleaching Ivory.*—Patented August 19, 1856.

The ivory pieces *e* are inserted into the grooves *a* formed of the glass pieces C and D, which extend through the entire length of the frame, thus the entire surface of the ivory pieces is exposed to the rays of the sun by turning the frame; either side of the ivory can be bleached, thus avoiding the tedious process of turning each piece separately, as was done heretofore.

Claim.—Providing the bleaching-frame with grooved strips of glass C C and D, to receive the ends or sides of the pieces of ivory exposed to the sun's rays whichever side of the frame is upward, substantially as described.

No. 16,100.—Julius A. Roth.—*Bleaching Process.*—Patented November 18, 1856.

The paper pulp or other fibre to be bleached is placed upon the perforated bottom B of the tank A which contains the bleaching agents. Atmospheric air is forced into the bleaching liquid through the pipes *c*, by which a gentle agitation is produced in said liquid, and the free oxygen of the air is brought in contact with the bleaching agents, whereby their action is greatly facilitated.

Claim.—Aiding the action of the usual bleaching agents by the application of atmospheric air, in the manner and for the purpose substantially as described.

No. 14,662.—John Jones.—*Improvement in Candle-Cutting Apparatus.*—Patented April 15, 1856.

The side of the box B, which is in contact with the tips of the candles, is made slightly concave, in order to have them cut of equal length by the circular cutter D (the form of the candles being slightly tapering). C C are guides upon which the box B is made to slide past the cutter D.

Claim.—1st. The concave guiding surface G as a means of gauging the candle's length, taken at its axis, as set forth.

2d. The combination of the sliding-box B with the cutter D, operating for the purpose of cutting candles of equal length, taken at their axes, as specified.

No. 16,211.—C. A. McPhetridge.—*Candle-Dipping Machine.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Dipping candles on a continuous wick from spools E by passing it through the heated beeswax in vat I through gauge-plate J, and then alternately through heated tallow at H and cold water at F,

and through steam-gauge box K, and then separating them by means of the cutters *c*, as herein described and set forth.

2d. The steam chambers or floats G, constructed as described, and for the purposes set forth.

No. 14,376.—VINCENZO SQUARZA.—*Improvement in Candle Dipping Machines.*—Patented March 4, 1856.

A detailed description of this machine would take up too much space to be given here.

Claim.—1st. The employment of intermittently rotating vertical wheels C C, or their equivalents, carrying a number of wick-frames or wick-holders, in combination with a rising and falling dipping-trough F, substantially as herein described.

2d. I claim keeping the dipping-trough supplied to the proper level with tallow from a reservoir above by a valve which is opened by the trough, or by some attachment thereto every time it rises, substantially as herein described.

3d. I claim the within described method of regulating the supply of tallow to the dipping-trough to make up exactly for the quantity taken therefrom by dipping, by the employment of two or more arms L, L^1, L^2, arranged at different elevations on a pivot *n* attached to the trough, so that either one of them can be turned to a proper position to lift the valve in the reservoir.

4th. I claim the employment for the purpose of tapering off the points of the candles of a trough H of hot water, into which the candles are plunged by the raising of the said trough while the candles are stationary, substantially as herein described.

5th. I claim the construction of the wick-frames in pairs, each pair consisting of a shaft D, carrying two fixed bars *b b*, two sliding-bars *d* d^1, to which are attached two pairs of clamping-bars *e e* and e^1 e^1, and two wick boxes *g* g^1; all the said parts being arranged and operating substantially as herein described, so that each frame of the pair may in its turn be supplied with wick as required to commence a new batch of candles.

6th. I do not claim the reduction of dipping candles to a uniform size by passing them through draw-plates. I *claim* constructing the draw-plates in two parts attached each to the jaw or jaws of one or more pairs of nippers, whether attached rigidly or to rollers fitted to the said jaws, as herein described.

7th. I claim the swinging frame P with its jaws R R^1, and rotary cutters *y y*, all operating substantially as described, to take hold of the candles and cut them off when finished.

8th. I claim the arrangement and combination of the table N which carries the boxes and the jaws R R^1 which take the finished candles, substantially as described, that is to say: having both the table and the jaws on shafts or centres, and gearing them together so that they will move in such a way as to deposit the candles in the boxes gently and without injury.

No. 15,668.—JOHN ROBINGSON.—*Improved Candle-Moulding Machine.*—Patented September 2, 1856.

The moulds, as they reach a point in line over the jaws J, rest in consequence of the pins *c* and levers H on the wheels E, and the teeth on the pulleys F gear into the racks G, and raise the jaws J, which separate the two parts of the moulds, the jaws ascending and grasping the ends of the wicks *a** of bobbins *b**; the jaws are then allowed to descend, the teeth on the pulleys F passing out of gear with the racks G. The jaws draw the wicks down through the moulds; the jaws when lowered are opened by bar *j* and the wicks above the moulds are cut off, the moulds being previously filled with tallow. The moulds pass along in the direction indicated by the arrow, and pass through a reservoir of water placed in the lower part of the framing. The water cools the tallow, and as the moulds reach a point directly over the jaws *n n* on the rod L, said jaws and bars M are raised by the arms K, the bars M being elevated sufficiently to open the moulds I, and the jaws *n* grasp the ends of the candles as they descend and draw them from the moulds, the plate P moving forward at the same time, throwing the candles into a receptacle Q.

Claim.—Attaching a series of moulds I to endless chains B B, which have an intermittent movement; the moulds being formed of two parts, and opened and closed at the proper time by the jaws J, operated for the purpose specified.

I also claim drawing the candles from the moulds, by means of the jaws *n n* attached to the rod L, arranged and operated for the purpose shown.

I further claim, in connexion with the jaws *n n*, the plate P, operating for the purpose of turning or conveying the candles into the receptacle Q.

No. 15,968.—WILLIAM C. CHILDS.—*Improvement in Mould-Candle Machines.*—Patented October 28, 1856.

In operating this machine the wicks are drawn from the spools in the spool-box B and upward through the moulds C respectively, and are fastened to the bar H of the lifter frame E, each wick being run through one of the notches of the centering plate *d*. After the moulds have been filled with tallow, the bar H and frame E are elevated by means of a windlass, and the candles are raised out of their moulds, fresh wicks at the same time being drawn upwards through the moulds. By repeating this operation a number of times, a row of candles may be formed on each wick, which will depend from the bar H.

Claim.—Arranging the wick-centering plate *d* in the trough of the candle-moulds, and on the bottom of said trough as specified.

Also, so applying the front board to the bottom board of the trough, that said front board may be turned down or removed from the trough, in order that the vertical edge or front part of the surplus fat in the trough may be exposed, for the purpose of facilitating the removal of said surplus fat from the candles.

No. 16,056.—AUGUST HENGSTENBERG.—*Candle-Mould Machine.*—Patented November 11, 1856.

A detailed description of this invention would take up too much space to be given here; the principal features of it will be understood by reference to the claim and engravings.

Claim.—The combination of the spools, as constructed in my machine, with their gearing and locking; also the securing of the cutter by means of the layer S, substantially as described, and for the purposes specified.

No. 14,397.—FRANCOIS GARCIN.—*Improvement in the Preparation of Tallow for Making Candles.*—Patented March 11, 1856.

For bleaching and purifying 3,500 pounds of tallow the following ingredients are used:

For washing the tallow are used 3½ pounds of nitric acid, reduced by adding 22 parts of water to every 60 parts of acid. The tallow is then removed from reservoir 2 to reservoir 3 and melted, and there is then added to it 5 pounds of sulphuric acid, reduced by adding to it 25 parts of water to every 60 parts of the acid. The tallow is then taken to another reservoir 4 and mixed with 5 pounds of pure alcohol, 7 pounds of creta gallica, 11 pounds of slacked lime, and 1½ pounds of camphor. It is then further bleached in other tubs 5 5, by adding to it 4 pounds of borax and 2 egg-shells. Then again it is removed into a double bottomed copper-boiler 6, and mixed with 1½ pounds of pure alcohol, 1½ pounds of camphor, and ¼ of a pound of oil of lemon—S, 9, 11, 12 are steam-pipes.

Claim.—The method herein described of bleaching and purifying fat or tallow, for the purpose of making candles, the same consisting in the use of reduced nitric and sulphuric acids, creta gallica, slacked lime, camphor, borax, egg-shells, and oil of lemon, in the proportions and order herein set forth and described.

No. 15,821.—BENJAMIN D. SANDERS.—*Improvement in Many-Wicked Candles.*—Patented September 30, 1856.

This invention consists in constructing a candle with three or more solid wicks, arranged angularly to each other, so that a straight line will not intersect them, and at such a distance apart that the several flames in uniting leave a central air-space between them, at the bottom, for the admission of air, thus affording a better supply of air than the supply on the exterior of a flame does.

Claim.—A candle constructed as described, with three or more wicks *a*, when said wicks are arranged angularly to each other, or in the path of a circle struck from the centre of the candle at equal distances apart or thereabouts, essentially as shown, and for the purposes specified.

No. 16,208.—Willis H. Johnson.—*Mode of Incorporating Bituminous Liquids with Wet Earths for Cement.*—Patented December 9, 1856.

This invention consists in mixing mortar in its wet condition with about fifteen per cent. of coal tar, which, when incorporated together, will form a better and cheaper bituminous mortar than that made by a composition of dry mortar and heated bituminous matter.

Claim.—The combination of bituminous liquid and aqueous cements or mortars, substantially as set forth.

No. 15,275.—Horace Billings.—*Improvement in Roofing Cement.*—Patented July 8, 1856.

The nature of this invention will be understood by reference to the claim.

Claim.—The improved roof-coating cement or composition of matter, produced by combining shellac (or seedlac), rosin, linseed oil (or its equivalent), and powdered steatite (or its equivalent), in proportions which will give the said composition the character and adapt it to the purposes substantially as herein set forth.

No. 16,304.—Andrew Grimes, assignor to Charles Day.—*Improvement in Burning Charcoal.*—Patented December 23, 1856.

The sticks of wood *c* are piled around the chimney *a*, and then kindled from its top. The top part of the pile, composed of the sticks *c*, is then laid on to the lower part; and when thus arranged the wood is prevented from burning to ashes without the use of any covering.

Claim.—Burning wood in the open air without any covering of earth, or any substitute therefor, in such a manner as to reduce any given amount of wood to a mass of red hot coals, preventing the pile from burning to ashes until the result is accomplished in the manner set forth.

No. 16,170.—Timothy Brown.—*Alloy Composition.*—Patented December 9, 1856.

The alloy, as specified in the claim, is intended to be used for metallic cheese hoops, as it will not be oxydated by the lactic acid of the whey.

Claim.—The metallic composition or alloy, composed of zinc from fifty-six to seventy parts, tin eighteen to eight parts, copper one part, and antimony one part, for the purpose specified.

No. 14,037.—Andrew H. Ward, Jr.—*Improvement in Compositions for Treating Wool.*—Patented January 1, 1856.

This invention relates to the treatment of wool with oleic acid instead of oil. The oleic acid is used in the same manner that oil has been

ordinarily used; a small quantity, however, is sufficient for producing the desired effect, as it has a greater penetrating power in saturating the fibres of wool than oil. When the wool is to be cleansed a compound of purified carbonate of soda, sulphate of soda, and common salt, in the proportion of one pound to every quart of oleic acid is used, and this proportion dissolved in water is to be mixed with the portion of water in which the goods are first washed.

The inventor says: I do not claim the employment of ordinary oils or the mixture of crude oily acids called "*red oil*," for oiling and cleansing wool and goods. Nor do I claim the use of a nearly pure oleic acid in the treatment of wool, nor its subsequent removal by alkaline carbonates only; but what I do *claim* is, the employment of neutral salts as specified, with the alkaline carbonates and the oleic acid, for the purpose and to produce results as stated.

No. 14,832.—JOHN ROSE.—*Improvement in Compositions for Stuffing Leather.*—Patented May 6, 1856.

The inventor says: Being well aware that other meal than rye, and other oil or fatty matter than cod, if commingled with the wax, rosin, and molasses, can be used and would produce nearly the same effects, I therefore do not claim the rye meal or the cod oil exclusively, nor the precise proportions.

But I *claim* softening leather by stuffing it with a compound made of paste, made of rye or other meal, beeswax, rosin, molasses, and oil, or other fatty matter.

No. 15,161.—HORACE VAUGHN.—*Improvement in Compositions for Working Steel.*—Patented June 17, 1856.

The composition is used in a dry pulverized state and in the following proportions:

2 ounces of bi-chromate of potash.
14 ounces of prussiate of potash.
17 ounces of chloride of sodium.

Claim.—The dry compound of chloride of sodium and bi-chromate of potash, with or without the prussiate of potash, for hardening and tempering steel, combined, applied, and operating substantially as set forth.

No. 15,551.—LEWIS BUCHHOLTZ.—*Improved Blastic Compound.*—Patented August 19, 1856.

This composition consists of four ingredients, saltpetre, charcoal, lycopodium, and white sugar.

Claim.—I claim the composition and application of the ingredients mentioned, whether in the ratio described or in any other substantially the same, in the manner and for the purposes substantially as specified.

No. 14,911.—Francis Gerau.—*Improvement in Artificial Decoloring Compounds.*—Patented May 20, 1856.

The inventor says: I will mention particularly that I do not claim the use of phosphate of lime as such and in general, as it is found in burned bones, and has lately been discovered in large alluvia; but it is the phosphate of lime in that particular state of precipitation, which state alone affords to the coal its main properties, and which is entirely different from the former.

Claim.—The use of phosphate of lime, precipitated out of a solution in muriatic acid, as an ingredient in a compound of materials for the manufacture of a decolorating coal, which other materials may be varied according to circumstances.

No. 15,563.—Lansing E. Hopkins.—*Improvement in Felting Compounds.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claim.

Claim.—Keeping the articles to be felted constantly saturated with or immersed in a solution of saponaceous matter during the operation of felting, and near the close of the operation adding to said solution a small quantity of ammoniacal matter, substantially as set forth.

No. 15,520.—Frederic Kuhlmann.—*Improvement in Vehicle for Paint Compounds.*—Patented August 12, 1856.

The nature of this invention will be understood by reference to the claim.

Claim.—The admixture of silicate of alkali in substance with a paint, varnish, ink, or dye, (instead of using it in layers or coatings, as heretofore done,) using for the protection of the several individual coloring matters such agents as are known to scientific or practical chemists, and which I have described.

No. 15,806.—Isaac Gattman.—*Improvement in Mixing Wheat Flour with Paints.*—Patented September 30, 1856.

This invention consists in manufacturing paints by grinding the dry or crude colors in a paste composed of one hundred pounds of flour mixed in fifty gallons of water, and the adding a solution of fifty pounds of rosin, and forty gallons of fish or any other drying or volatile oil; which paste is then diluted in two hundred gallons of boiling water.

The inventor says: I do not claim exclusively the use of watery solutions for mixing paints; but I *claim* the manufacture of paints by grinding crude colors in a composition of water, flour, or its equivalent, rosin, or its equivalent, fish oil, or any drying or undrying oil, in the proportions and manner substantially as set forth, in order that the paint thus manufactured may be produced at a cheap rate, and afterwards thinned with water to the required consistency.

No. 14,053.—Dominique Emile Coutaret.—*Improvement in Disinfecting Fecal Matter.*—Patented January 8, 1856.

This invention consists in using a deodorizing liquid of the following description for disinfecting fecal matter: Chimney soot is boiled in water in order to extract from it the empyreumatic principle, and chiefly the creosote; salt of iron is then dissolved in this decoction, the liquid drained, and the deposit dried, which consists of charcoal, impregnated with acetate of iron, containing sufficient creosote to form a powerful deodorizing powder.

Claim.—The use of the ingredients named for deodorizing feculent or other decomposing organic matter, and converting said matter into manure, as described.

No. 15,959.—John P. Derby, assignor to the Salisbury Manufacturing Company.—*Improvement in Dyeing.*—Patented October 21, 1856.

The nature of this invention will be understood by reference to the claim and engraving. The object of it is to produce figures of various colors by the process of dyeing with no application of any process of printing, whereby the brightness of the colors is shown on both sides of the goods.

Claim.—Protecting certain portions of the fabric from the action of the dye, by a resinous compound, which may be applied cold; and afterwards removing the same by water, diluted alcohol, or the other means enumerated, substantially as set forth.

No. 15,361.—Friedrich Emil Schmidt.—*Improvement in preparing Vegetable Dye-Stuff.*—Patented July 15, 1856.

The nature of this invention consists in subjecting the juice of Bacca Phytolaccæ decandriæ, generally known by the name of buckberry, to a treatment by which the red pigment of the juice is so altered that it will give, with or without mordants, durable colors in red or violet. The treatment consists in filling said juice into hermetically sealed vessels, in which it will undergo, in the space of two months, such a change as to obtain the property to give a durable red color with mordants.

Claim.—The treatment above described of the juice, previous to its use for dyeing, to produce permanent and durable colors.

No. 14,418.—Abraham Steers.—*Improvement in Apparatus for making Extracts.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The within described displacing apparatus, in connexion with the application thereto of heating and cooling agents, substantially as herein set forth, viz: The said apparatus being composed of the per-

colater K and the receiver M, separated from each other by means of a perforated diaphram Q, or its equivalent, the said percolater having its upper end closed by a metallic cover, supplied with an outwardly opening-valve, at the same time that the top of said percolater is connected directly with the said evaporating receiver by means of a pipe supplied with a valve or stop-cock, by which arrangement the contents of said percolater can be operated upon; first by steam generated in the evaporating receiver, and then by the percolation of the menstruum after it has been evaporated and condensed again, substantially as herein set forth.

No. 15,158.—GEORGE F. WILSON and GEORGE PAYNE.—*Improvement in Saponifying Fats.*—Patented June 17, 1856.

The nature of this invention consists of the process of distilling over glycerin, together with the fat acids from neutral or partially neutral fats, the glycerin and fat acids being mixed, but uncombined, so that they will separate when allowed to stand.

By this process the fat acids will be pure, and the glycerin will also be pure, but dissolved in the water resulting from the condensation of the steam passing off with the vapors of the glycerin and of the fat acids.

The inventors say: We are aware that oils and fats have been heated with steam, and that it has been used as a carrier in the still, but they have not been treated in accordance with our process, viz: by steam maintained at about 550° to 600° temperature, above specified, and so as to produce results attained by it. We therefore lay no claim to the process above mentioned of treating oils or neutral fats by heat and artificial pressure, so as to prevent the formation and use of steam or vapor, nor do we claim the common method of treating them by steam in a superheated state; but we *claim* the improved process of treating them, so as to distil over glycerin with fat acids, mixed but uncombined, as herein before explained.

No. 15,517.—IRA HOLMES.—*Improvement in Filtering-Sand for Cider.*—Patented August 12, 1856.

The nature of this invention consists in filtering the juice of apples through a filter consisting of flannel cloth, covered with a certain kind of sand; this consists of silica, alumina, carbonate of lime, black oxyd of iron, titaniferous iron, and peroxyd of iron and has the peculiar quality to convert the acid of the apple juice into saccharine, thus rendering the cider of a superior quality, and adapting it to the manufacture of molasses or syrup.

The inventor says: I do not claim making cider from apples. Nor do I claim simply evaporating cider by boiling.

But I *claim* the described discovery and process for making a beverage and syrup from the juice of apples, as set forth.

No. 16,129.—CHARLES F. THIEME.—*Improved Gas-Cock and Swinging-Joint.*—Patented November 25, 1856.

The plug B being inserted in the barrel A, and the cap B^1 screwed into a cemented connexion with the lower end of the same, the apparatus can be used both as a swing joint and cock. By screwing the key C up to its shoulder, no gas can pass through plug B nor out of barrel A; but when said key is screwed down, the gas can pass through opening *p* into plug B.

Claim.—Making a swinging joint for gas brackets, substantially as described, the same consisting of the tubular plug B and its cap B^1, with the leather washer *k* and spring *i*, or their equivalents, in combination with the barrel A, constructed as set forth and described, so as to produce a gas-tight swing joint without the usual boring and grinding required, as described.

Also, the combination of the key with the lower end of the plug when the same is used as a gas cock, so as to dispense with a distinct barrel heretofore required for a cock, the said key being constructed, combined, and operating substantially in the manner set forth and described.

No. 14,368.—ALPHONSE QUANTIN.—*Improved Method of Bottling Fluids under Gaseous Pressure.*—Patented March 4, 1856.

The end of the cock N is to be inserted in the opening of the bottle stopper. The cock A is opened by means of lever I. This permits the mineral water to enter the tube E, which contains the requisite measure of syrup, and forces it by the cock D, opened by the same motion of A, to enter O and N, which is in the stopper of the bottle, and which fills it instantaneously. The lever M is then turned, which shuts the cock N, gives half a revolution to the cylinder P, and shuts the top part of the stopper and completes the operation.

Claim.—The compound apparatus, composed of metal or other substances, constructed and operating substantially as herein before described, that is, to introduce a certain portion of a liquid into the apparatus, and force it out by the action of another liquid, gaseous or fermented.

No. 15,973.—CHARLES A. HOWARD.—*Gas Generator.*—Patented October 28, 1856.

The operation of this apparatus is as follows: The gas supplied to the burners I is lighted, and when the retorts are properly heated by them, the material from which the gas is to be produced is fed into the upper retort L through the feeding pipe B, and is vaporized by coming in contact with the heated surfaces; and the material which remains undistilled flows down into the lower retorts A and M, where it is distilled, and the gas, as produced, is taken off by the pipe C and conveyed to the gasometer E.

Claim.—The series of inclined retorts, constructed and arranged substantially as described.

No. 14,926.—Max Pettenkofer and Carl Ruland.—*Improvement in the Construction of Gas-Generators.*—Patented May 20, 1856.—Bavaria, February 24, 1851.

The retort A containing the vegetable fibre is enclosed within walls forming flues; the gasses pass through pipe E into the upper regenerator B B B, in which the gas is compelled to travel backwards and forwards by dividing plates x x^1, and from the back end of B into the lowest regenerator B^1, and having traversed it through its chambers, passes off by the exit pipe H to the purifying apparatus.

Claim.—The construction and arrangement of the many-chambered regenerators for making gas from wood or vegetable fibre, whereby the primitive vapors of destructive distillation of wood or vegetable fibre are progressively heated up beyond the heat in the retort.

No. 14,045.—N. Aubin.—*Improvement in Making Illuminating Gas.*—Patented January 8, 1856.

The nature of this invention consists in generating illuminating gas from rosin, grease, oil, tar, or other such substances, rich in hydrogen and carbon, which are in a liquid form, or become so on being subjected to heat, by mixing the same with coarsely divided charcoal, bricks, &c., which contain no gas and are slow conductors of heat, for the purpose of decomposing the same and to facilitate the withdrawal of the contents after the gas is extracted. The above described mixture is introduced into the vessel E, which is provided with a perforated bottom E^1, which is placed inside the retort B. Water is allowed to drop through the cock a^3 and syphon pipe a^2 into the steam generator D, and as the apparatus is heated by the fire of a fire-place A^1, gas is generated and expelled from the retort through pipe B^2.

Claim.—Mixing the materials from which the gas is to be generated with porous or coarsely divided substances, which are slow conductors of heat, and introducing the mixture into the retort in a vessel with a perforated bottom, so constructed as to compel the contents of the vessel expelled by the heat to escape at the lower end, near to or in contact with the bottom of the retort, where the heat is most intense, substantially as described.

No. 15,267.—Charles F. Werner and Charles Deutschmann.—*Improvement in Dry-Lime Gas Purifiers.*—Patented July 1, 1856.

The gas in passing from the retort through the pipe D is cooled, and all condensable matter is precipitated by the pipe D^1 into the vessel E. The gas enters then pipe F, and escapes therefrom in minute streams into compartment c, where it percolates through the hydrate of lime; it passes then through pipe F^1 into c^1, after which it escapes by another pipe F^2 into a third compartment c^2, from which, after having been for the third time purified by passing through hydrate of lime, it escapes by pipe G to the gasometer.

Claim.—The arrangement of the lime purifier in the same vessel or cooler B with the cooling pipe, when the said cooling pipe is arranged in serpentine form below the purifier, in the manner substantially as herein described.

No. 15,010.—JOHN G. HOCK.—*Improvement in the Arrangement of Gas-Retort Bench.*—Patented June 3, 1856.

This invention consists in an arrangement of flues *a a c d e e f g h i j j k k* in a bench of five retorts A^1 A^1 A A A^2, whereby the heated products of combustion are brought into action on the retorts in such a manner as to heat them individually in all their parts and with great uniformity.

Claim.—The within described arrangement of the flues, by which the flame and heated products of combustion are caused to pass first under the bottom retorts A A, next under the top retort A^2, then under the retorts A^1 A^1, and over A A, and finally over A^1 A^1 and A^2.

No. 14,934.—SAMUEL H. WALKER and MATTHEW C. WALKER.—*Improvement in Gas-Retort Cleaners.*—Patented May 20, 1856.

When the operation of the retort A commences, the part *d* of the handle *c* is detached, and the opening through which the scraper-rod passes closed. When the retort requires scraping, the cap E is taken off, the rod *d* is fastened to the scraper-rod *c*, and the scraper is then pushed into the opposite end of the retort, and the residium on the bottom is scraped off and drawn through the passage 6 into the box D. The opening *f* through which the rod passes is just large enough to allow the said rod to pass freely through.

Claim.—Providing the retort with a receptacle D below its bottom, and applying in connexion therewith a scraper F arranged and operating substantially as described, to scrape the residium from the bottom of the retort into the said receptacle without suspending the operation of the retort.

No. 16,075.—WILLIAM H. ST. JOHN.—*Copper-Ring Gas-Retort Fastening.*—Patented November 11, 1856.

The flange I of the retort is provided with a groove into which a corresponding projection of lid M fits, and the groove is lined with copper, to form a more perfect joint than the two surfaces of the same kind of metal can make. The hot air chamber M below the mouth of the retort is supplied with hot air from the flue H, for the purpose as specified in the claim.

The inventor says: I am aware that lead has been used for tightening the joints of boilers; this I do not claim.

But I *claim*, first, the tightening with copper of the joints of doors of gas-retort heads, when the said joint is effected by the otherwise usual

groove inserted in the flange of the mouth-piece, to meet a corresponding projection on the door in the manner and for the purposes specified.

I further claim the placing a hot air chamber beneath the mouth-piece, to consume the tar and oil collecting on the bottom of the latter.

No. 14,913.—JOHN G. HOCK.—*Improvement in Gas-Retort Fastenings.*—Patented May 20, 1856.

To fasten or unfasten the head it is only necessary to bring down the bail D, or to lift it up and throw it back, as shown in dotted lines in fig. 1. When the bail is thrown off the rib *e*, the head remains supported by the lugs *a a* resting on the shanks of the bolts B B, so that the bolts serve not only to attach the bail, but to support the head.

Claim.—The attachment of the bail to the retort or other mouth, by means of the hook-headed bolts B B.

No. 14,996.—N. AUBIN.—*Improvement in Feeding Apparatus for Gas-Retorts.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The vessel H to contain the materials from which the gas is to be made, in combination with the inner vessel or weight J, arranged so as to gradually expel the contents of the vessel H as they are melted or rendered more fluid by the heat of the retort A, and thereby afford a regular supply of said materials to the gas-making process going on in the retort.

No. 15,376.—JAMES HUMPHREY.—*Improvement in Gas Stop-Cocks.*—Patented July 22, 1856.

The gas coming from the supply-pipe and passing up the pipe *c* enters the chamber between it and the cylinder *d*, but is prevented from escaping therefrom as long as the triangular slot *h* is submerged in the mercury *g*; but as soon as the upper part *b* is raised by the pressure of the mercury, the slot *h* will partly be raised above the mercury, and the gas can escape through said passage to the burner, as indicated by the arrows.

Claim.—The mercurial gas cock, constructed with the adjustable slotted cylinder and the reservoir of mercury, arranged and operating substantially as described.

No. 14,814.—HENRY G. TYER and JOHN HELM.—*Improvement in Making Gum-Elastic Cloth.*—Patented May 6, 1856.

The inventors say: We do not claim as our invention the weaving of cloth, or cloth woven with the threads of the weft diagonally to the

threads of the warp, for that was patented by Healey; nor do we claim the stretching of cloth so that the threads of the weft, while held in the stretched condition, shall stand diagonally to the threads of the warp; nor do we claim generally the cementing of threads or sheets of rubber between two pieces of cloth so stretched; nor do we claim any elastic fabric consisting of two pieces of stretched cloth, united in whole or in part by unvulcanizable material.

But we *claim* an elastic fabric composed of two pieces of cloth, either woven with the threads of the weft in a diagonal position to the threads of the warp or of common cloth stretched so as to force the threads into such relative diagonal position, combined and caused to adhere together, exclusively by a vulcanized compound of India rubber or gutta-percha, the two pieces of cloth being first united by the vulcanizable compound and the compound being vulcanized after the union.

No. 14,972.—JAMES REYNOLDS.—*Improvement in Apparatus for Cleaning Gutta Percha.*—Patented May 27, 1856.

The gutta percha is cut into fine slices by means of the rotating disc C, with the cutters *a* fastened to it. The bark and foreign substances may now be extracted with little trouble. The gutta percha is then submitted to the beating or rubbing operation, which is effected by means of the beaters or lifters *c c* within the rotating circular screen H, as shown.

The inventor says: I do not confine myself to the employment of the particular machinery herein described; but I *claim* the extraction of the bark and foreign substances from gutta percha by cutting the blocks of the raw material into extremely thin slices or sheets, and submitting the said slices or sheets to a beating or rubbing and screening operation.

No. 15,439.—JAMES REYNOLDS.—*Improvement in Gutta Percha Apparatus for Covering Wire.*—Patented July 29, 1856.

The operation of this machine for covering telegraph wire is as follows: To prepare for filling the cylinder A with gutta percha, the piston G is run back by turning the gear *f;* the rear end of the cylinder is then raised by turning shaft *d* by a hand crank, and the cylinder is filled with gutta percha. The cylinder then being lowered, the piston is run up close to the charge; the outer ends of the die piece *m* and core piece *n* are then closed by stoppers; the cock p^1 is opened and an exhausting apparatus, connected with the cylinder by means of pipe *q*, is set in motion to extract the air which is contained in the material; when all the air is extracted, the cock *r* is closed, and the piston G is run in far enough to pack the whole charge into one compact mass. The stoppers are now removed from the die and core piece, and the cock p^1 opened, and the wire to be covered passes through the hole in the core piece and into the die *m*. Motion being communicated to the machine, the piston G moves slowly forward, and the circular trough J, filled

with water, begins to revolve to receive the finished wire. The piston forces the gutta percha through the die *m;* and the gutta percha, in passing through and being compressed in the die, carries with it the wire, drawing it through the core piece as fast as the rope issues from the die.

Claim.—1st. Providing the cylinder, or other vessel in which the gutta percha is submitted to the pressure, with a connexion to an air-pump or other suitable exhausting apparatus, for the purpose described.

2d. The arrangement of the die and core or core piece, transversely to the direction in which works the piston or other device for producing the pressure, substantially as and for the purpose specified.

3d. Providing the stomach I, or its equivalent, which contains the die with a variable escape opening *p*. substantially as and for the purpose set forth.

4th. The continuously revolving water trough, arranged relatively to the die, and operating substantially as and for the purpose set forth.

No. 16,215.—JAMES REYNOLDS.—*Mode of Making Gutta Percha Cord.*—Patented December 9, 1856.

The gutta percha cord G is inserted between the dies D, then passed around the rollers C and C^1, and rotary motion being given to said rollers, the cord is operated upon as described in the claim.

The inventor says: I do not claim as new a mere combination of dies and rollers, as such, variously arranged, is common in the manufacture of metallic tubing and other articles; but I *claim* the process described of finishing gutta percha cord by means of the dies D D^1 and grooved rollers C C, arranged and operating together and on the cord, as described; the said dies being of larger diameter than the grooves in the rollers, and serving to close up flaws, draw and compress the cord and equalize its size, while the smaller grooves in the rollers serve to slightly compress and give a smooth finish to the cord, and establish or sustain the feed of the cord, without risk of bruising by attrition, through a windlass action, as specified, and by which combined action of dies and rollers the cord is stretched to its fixed point between the dies and rollers, as set forth.

No. 15,087.—JAMES REYNOLDS.—*Improvement in Feed Apparatus for Working Gutta Percha.*—Patented June 10, 1856.

The pistons are severally forced out as they approach their highest position, and then descending in contact with the concave, force down the material, thereby producing the necessary pressure to fill the dies. Any material leaking past the pistons into the space *f* is allowed to escape through the shaft E by means of the passages *e e e e*.

Claim.—The combination of the rotary forcing apparatus, consisting of a cam E for forcing out the sliding piston D D, arranged entirely within the rotating head C C, with a passage or passages within the rotating head which carries the said pistons, providing for leakage, substantially as and for purposes herein described.

No. 14,929.—A. D. PUFFER.—*Improvement in Lining Metal Pipes with Gutta Percha.*—Patented May 20, 1856.

To facilitate the operation of drawing down the leaden pipe, the lead may be sufficiently warmed, by means of hot water, to enable it slightly to soften the gutta percha. The accompanying drawing represents a pipe *a* lined with gutta percha *c*, and the method employed to unite the pipe with the ordinary coupling.

Claim.—The method of lining metallic pipes with gutta percha—the pipe being drawn down upon the lining.

No. 15,086.—JAMES REYNOLDS.—*Improvement in Mandrels for Making Gutta Percha Tubing.*—Patented June 10, 1856.

The shank *f* of the mandrel F is formed with an eye *h*, to connect the mandrel with the hooked end *g* of a long rod of iron G. This rod G is secured at *l*, while the tube is drawn over the mandrel; during which operation, the mandrel serves as a support to the material against the action of the die, and the die as a support against the action of the mandrel, which causes the material to be compressed and condensed.

Claim.—Constructing the mandrel with a joint, as described, and for the purpose as specified.

No. 15,067.—AUSTIN G. DAY.—*Improvement in Cleaning India-Rubber.*—Patented June 10, 1856.

The rubber is first cut into small pieces and worked in water, whereby the largest of the foreign matters are removed. The rubber is then placed in an air-tight cylinder A, and the vat N is filled with a solution of caustic soda, which is pumped into the vats E and F. The air-pump is now put in operation, and a partial vacuum produced in the cylinder; thus exhausting the air from the interstices of the rubber, and removing the noxious gases. The caustic alkali is now allowed to flow into A, which renders the wood, bark, and other foreign matters heavier. The liquid is now drawn from A, through O, into N; the rubber is then removed from A, and thrown into vats containing water, which is so stirred as to allow the heavier parts to sink, while the rubber is left floating upon the surface.

Claim.—The exhaustion of the noxious gases from the crude India-rubber, and its subsequent treatment, for the purpose of cleansing and purifying it.

No. 14,811.—NATHANIEL HAYWARD.—*Process of Preparing Elastic India-Rubber Cloth.*—Patented May 6, 1856.

The inventor says: I wish it distinctly understood that I do not claim the elastic fabrics usually denominated shirred goods, and made of threads or strips of rubber combined with cloth; nor do I claim what are commonly called woven elastic goods; nor do I claim

the mere union of cloth with India-rubber; for this has been done in various ways, without producing an elastic fabric.

But I *claim* the producing an elastic fabric of uniform strength by uniting a sheet of rubber with sheets of cloth thinly coated on one side with a vulcanized compound of rubber; the sheet of rubber before it is united with the sheets of cloth being in the modes set forth so prepared that the central part of it is completely vulcanized, while the surfaces are not.

No. 15,947.—JACOB H. HOWELL.—*Improvement in Making India-Rubber Hose.*—Patented October 21, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The herein described method of constructing India-rubber hose—that is to say, by winding a fillet *f* spirally upon a mandrel *c*, and upon this winding a second fillet *g*, which shall cover or break the line of joining the first; the said fillets being made to adhere along their cut edges, as well as to each other, substantially as set forth.

No. 14,657.—NATHANIEL HAYWARD.—*Improvement in Manufacture of India-Rubber.*—Patented April 15, 1856.

This invention consists in the mode of preparing and cementing vulcanized India-rubber fabrics.

The cement is applied to the two pieces in one, two, or three coats, according to the thickness of the coat; after which the whole is exposed to the vulcanizing process.

Claim.—The improved process of cementing and uniting one piece of vulcanized rubber with another piece of rubber, either vulcanized or in a state capable of being vulcanized.

No. 16,069.—T. SAULT.—*Process for Cleaning India-Rubber.*—Patented November 11, 1856.

The India-rubber is cut in slices, and placed into the tank F, and a constant stream of water is allowed to flow into it at the same time that it is submitted to the operation of the cylinder B, provided with teeth C, which pass between the serrated bars D of a concave; the India-rubber by this action is liberated from all its impurities, which subside to the bottom of the tank below the bed F, which is perforated for their escape.

Claim.—The cleaning of India-rubber by means of the serrated sided teeth C C and stationary serrated sided bars D D, constructed and arranged to operate in combination with each other, substantially as described.

No. 16,269.—HENRY DAVENPORT.—*Improvement in Machines for Cutting India-Rubber Thread.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The combination of the cylinders or drums B B^1, over which the endless belt of India-rubber, from which the thread is to be cut, is stretched, with the revolving circular cutters E E^1, attached to the table D; the whole arranged, constructed, and operating in the manner described.

No. 15,531.—WILLIAM F. SHAW.—*Improvement in Treating India-Rubber.*—Patented August 12, 1856.

This invention consists in rendering fabrics of India-rubber impervious to illuminating gas, by treating them with linseed oil in a heated state, by which any excess of sulphur contained in the fabric may be combined with the oil to form an elastic compound of oil and sulphur, impervious to air and gases, yet allowing of bending and stretching.

Claim.—The treatment of sulphured rubber or gutta percha with unsulphured drying oils or unsulphured rubber or percha with sulphured drying oils, in the manner set forth.

No. 15,998.—HENRY FORSTRICK.—*Improvement in Working Over Vulcanized India-Rubber.*—Patented October 28, 1856.

Vulcanized India-rubber from which the sulphur is to be extracted is reduced to powder, and then heated with diluted nitric acid, which oxydizes the sulphur into sulphuric acid; the gum is then subjected to the vapors of fusel oil, (grain oil,) and then a small quantity of chloride of calcium is added, when the mass is dried and fit for use, either alone or in combination with native gum.

Claim.—The manner of extracting unorganic matter from vulcanized India-rubber, gutta percha, and other gums, or their compounds, by the application of diluted nitric acid and the use of fusel oil, (grain oil,) either in a heated state, mixed with the gum, or in the shape of vapors, for the restoration of the cleansed gums to the state of cohesion.

No. 15,942.—JOHN J. BATE.—*Improvement in Lard-Rendering Kettles.*—Patented October 21, 1856.

The material to be melted is placed into the double kettle *a* and concentric annular kettle *c*, and steam being admitted through the pipes *f* into the space *b*, the material in said kettles is melted.

Claim.—The combination of the double steam kettle with the annular chamber, substantially in the manner and for the purposes set forth, and covering the exterior of said chamber with a non-conductor.

No. 15,391.—JOHN C. FR. SALOMON.—*Improvement in Liquids used as a Motive Power.*—Patented July 22, 1856.

The nature of this invention consists in the use of sulphoil carbonic acid in combination with carbonic acid as motive power. The sulphoil

carbonic acid is made by a combination of coal tar, oil, and bisulphuret of carbon, decomposed by sulphuric acid.

Claim.—The sulphoil carbonic acid liquid, prepared in the manner substantially as described, and in combination with carbonic acid generated in any known way, or other equivalent liquifiable gas, as a motive power.

No. 14,791.—CLAYTON BROWN, sen'r.—*Improved Apparatus for Lubricating Grist Mill Spindles.*—Patented May 6, 1856.

By turning the piston G the oil will be forced against the spindle C. When the chamber D requires to be filled, the stop-cock F is turned, and the oil in the inner end of the tube E is prevented from flowing back into the chamber D.

Claim.—The oil chamber D, with tube E attached, the tube being provided with a stop-cock F, and the chamber with a piston or follower G, the inner end of the tube passing through the bush B.

No. 16,298.—JOSEPH WELSH.—*Improvement in Lubricating Spindle Steps.*—Patented December 23, 1856.

The oil in the recess *e* passes through the cotton *g* and channel *f*; and as the tube C rotates rapidly on spindle A, its upper bearing surface is also at the same time carried slowly up and down on the spindle, thus lubricating all that part of the spindle over which it moves. The surplus oil passes down the grooves *k* into the groove *h*, thus lubricating the face of step B.

The inventor says: I do not claim introducing the oil through the spindle, directly to the inside of the tube, as set forth and described; nor do I claim anything contained in the patent of E. W. Welch, dated January 28, 1840; nor anything in the application of Joseph Turner and E. S. Webster, rejected, respectively, in 1848 and '49.

I *claim* making the groove or grooves *h*, or their equivalents, at the lower end of the tube E, so as to conduct thereby, during the rotary motion of the said tube, the surplus oil from the spindle A to the horizontal face of the step B, substantially in the manner and for the purpose set forth and described.

No. 15,690.—GEORGE W. DAUGHERTY and THOMAS G. MCLAUGHLIN.—*Improvement in Lubricating Throstle Spindles.*—Patented September 9, 1856.

By removing the cap A, together with the parts C and C^1, from the spindle B, as represented in fig. 3, the valve H is pressed down to its seat, and the oil passes from the reservoir *a*, through the passages *f*, into the chamber G. By replacing the cap to the spindle B, the valve H is raised, as represented in fig. 2, and the oil comes in contact with the upper part of the spindle and runs down the groove *h*, formed in the same, thus causing an effectual lubrication by the necessary act of

removing and replacing the cap, and without having recourse to the tedious operation of stopping and starting the machine every time the lubrication of the spindles is required.

Claim.—The lubrication of throstle spindles, in the manner and for the purpose substantially as described.

No. 14,236.—WILLIAM GEE.—*Lubricator.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I *claim* a glass cylinder H H, as above described, protected by a brass or other metallic cylinder I I, with openings to see the oil, and the tube K, as described, passing up through the oil, which, by radiating its heat derived from the hot steam, keeps the oil in a liquid state under all temperatures.

I also claim the method above described of preventing accidents or the glass breaking, by the elasticity of the India-rubber above and below the edges of the glass lubricator, as packing I^1 I^1 I^1 I^1, as well as the diaphragm of India-rubber P P, as described, the whole in combination as a lubricator, or to supply and regulate the flow of oil, and by sight enable the person attending to know when the oil or lubricating material is exhausted, and by the method herein described. By the diaphragm P P, I do away with the necessity of having grooved metallic surfaces, which are always getting out of order. This lubricator will answer for supplying vacuum by opening the cock X. The air passing up the tube K above the oil, forces the oil out and makes a vacuum lubricator, which I include as a part of my claim.

I do not claim India-rubber as packing, as that has been used by myself as well as others; nor do I claim cutting away the cylinder to see through it, as that has been used by myself as well as others.

But what I do *claim* is, the India-rubber diaphragm P P in combination with double cocks N, and cylinder H H, and tube K, and valve D, handle A, guide B B, with other parts, in combination and operation as set forth in the specification.

No. 14,352.—WILLIAM E. EVERETT.—*Improved Lubricator.*—Patented March 4, 1856.

The oil cup A is stationary, and therefore can be filled properly at any time, however rapid the motion of the part U to be lubricated may be.

The shaft S gives motion to the spoons inside of the oil cup A. When the spoons deliver too much or too little oil, the bolt P can be adjusted in the slots of the arms R and L so as to increase or diminish the motion of shaft S.

Claim.—1st. A stationary oil cup or reservoir A in combination with a flexible tube I K, one of whose ends communicates with the cup, and

the other with the surfaces U *a* to be lubricated, substantially in the manner and for the purpose herein specified.

2d. Giving motion to the spoons of a mechanical oil cup, when it is used, in combination with a flexible tube, by means of a vibrating lever, or its equivalent, which derives its motion from the tube itself, substantially as herein set forth.

No. 14,549.—EDWARD J. BAKER.—*Lubricator.*—Patented April 1, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The combination of the reservoir A with the vertical stem or spindle B by means of the conical sockets *a* and *b* and bearings in the upper and lower parts of the reservoir, together with the passages or openings *l m p* which are in said sockets or bearings for the admission and discharge of the oil or lubricating fluid, and also for the escape of the air from the reservoir while oil or fluid is being poured into it. The said passages being alternately opened and closed by rotating or moving the reservoir around, or partly around, the central stem or spindle, substantially as described.

No. 14,797.—ABEL BREAER.—*Improved Lubricator.*—Patented May 6, 1856.

The plug C is turned so as to bring the passage *b* opposite C; the plunger E is then drawn outward, which fills the cylinder D, and the plug is turned to bring the passage *b* opposite to *d;* by pressing now the plunger E inwards, the contents of D are forced through the passage *d.*

The inventor says: I do not claim the application of a piston or syringe to a grease cock to force the grease against a pressure of steam.

But I *claim* the attachment of the syringe directly to the plug C of the cock.

No. 15,775.—NORMAN W. POMEROY.—*Improved Lubricator.*—Patented September 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—So constructing and connecting the disk which forms the bottom of the oil vessel, that, by reason of its curved or waving shape, the central part may be readily pressed inward by the thumb or finger, while its shape will cause it to return to its original position immediately on removing the pressure, when constructed, connected, and made to operate, substantially as described.

No. 16,018.—JAMES F. MONROE.—*Improved Lubricator.*—Patented November 4, 1856.

When the plug E is turned in a certain position by means of handle L, one of the holes through the bottom of the lubricating cup D falls over the hole *b* in the plug E, and the lubricating material flows into the plug E, any steam or air which may remain in the latter passing off through tube G. When the plug is turned again, the holes *a b* are closed, and the hole *h* is made to correspond with the hole *i* in the plate H, and the liquid within the plug E passes down to the steam cylinder.

Claim.—The plate H and plug E, as arranged and combined with each other and with the lubricating cup, for the purpose set forth.

No. 14,163.—ADOLPH C. MOESTUE.—*Improvement in Mastic for Covering Walls.*—Patented January 29, 1856.

The inventor gives the walls two coatings of a solution of rosin soap. Before the second coating is dry, he applies rosin powder to the wet surface. Finally, he applies to the wall a flame by means of a blow-pipe, or otherwise applies heat to the surface, moves the flame slowly over the wall, so as to melt the composition, and thereby produces a bright and hard coat resembling the glazing on stone ware.

The inventor says: I do not claim the application of an alkaline rosin solution, nor do I claim the sprinkling of pulverized substances on painted surfaces, and do not confine myself to any peculiar mode of coating the surface with rosin; but what I *claim*, and desire to secure by letters patent, is, the glazing of surfaces previously coated with rosin, or its equivalent, by a naked flame, in the manner and for the purposes described.

No. 15,553.—GAIL BORDEN, JR.—*Improvement in Concentration of Milk.*—Patented August 19, 1856.

The nature of this invention consists in keeping the new sweet milk to be concentrated in a vacuum vessel C, to keep the milk out of contact with the atmospheric air; and in then concentrating said milk in a vacuum vessel B, to prevent incipient decomposition in the constituent elements of the milk during the process of evaporation.

The inventor says: I am well aware that sugar and various extracts have been and are now concentrated in a vacuum, under a low degree of heat, to prevent discoloration and burning.

I am also aware that scalding milk, to improve its preservative qualities, has been long known, and that it has been kept in hermetically sealed vessels. I do not claim these processes.

I am also aware that William Newton, and many others since, have obtained patents for concentrating milk by various modes of evaporation, and combining it with sugar to render it soluble and preservative. I do not claim this as my discovery or invention.

But I *claim* producing concentrated sweet milk by evaporation in vacuo, substantially as set forth, the same having no sugar or other foreign matter mixed with it.

No. 16,255.—RICHARD SHRODER, assignor to JOHN S. RUSSELL and RICHARD SHRODER and ALEXANDER ANDERSON.—*Improvement in Apparatus for Coal Oil.*—Patented December 16, 1856.

The retort *a* being filled with bituminous coal, and exposed to heat, the distillation of the coal is effected, and the vapors first pass through pipe *l m n o*, where they are condensed to a pure oil, which can be drawn off by means of faucet *r*. As the process progresses, gases begin to escape through pipes l^1 and l^2, which, being condensed, furnish oils of inferior qualities. By this arrangement, the oils of different qualities are separated at one operation without applying the process of refining.

The inventor says: I do not claim, broadly, the extraction of oil from bituminous coal, excepting in the manner described.

But I *claim* constructing the retort, or generator, with openings at different heights, as shown, for the purpose of obtaining oil of different qualities, as set forth.

No. 15,643.—CUMMINGS CHERRY.—*Improvement in Apparatus for Distilling Crude Oil from Mineral Coal.*—Patented September 2, 1856.

The fresh coal to charge the retort is fed in through the door *g*, the coal being kept up to the height of the bottom of the head-piece *a* by the addition of fresh coal. The coke left after the extraction of the oleaginous vapor sinks to the bottom of the retort, and is drawn out by means of an iron hook from the bottom of the trough *d*; the water in the trough serves to close the lower extremity of the retort, and to condense any gas that may attempt to escape in that direction. From the head *a*, which serves as a receptacle for the oleaginous vapor, a pipe passes to a condenser, where the vapor is condensed into a crude oil.

Claim.—Providing upright retorts for the manufacture of oil from bituminous coal, with a closed top, and an opening at their bottom to be immersed in water, in the manner and for the purpose substantially as described.

No. 15,506.—LUTHER ATWOOD and WILLIAM ATWOOD.—*Improvement in Preparing Oil from Bitumens.*—Patented August 12, 1856.

Bitumens which do not yield paraffine by distillation, such as Trinidad pitch or Barbadoes tar, are freed from volatile matter by the process of distillation, and the product is distilled over again, and the distillate is placed in an agitator and mixed with sulphuric acid. After the subsidence of the acid, the oil is removed to another agitator and treated with a solution of caustic soda; when the foul soda solution has been withdrawn, and the oil has cooled, it is treated with a solution of manganate of soda. The material thus purified must be again distilled until all impure matter is separated and a pure oil is obtained.

The inventors say: We are aware that solid bitumens have been used to produce light naphthas by distillation, and the residuums for cements. Heavy acid oils have also been known as products of their decomposition.

We disclaim the production of such bodies, and confine ourselves to the use, as the basis of our manufacture, of such bitumens as do not produce paraffine, which we decompose by the aid of high temperatures conjoined with chemical agents, so as to obtain a nearly colorless and odorless oil, boiling above 600 degrees Fahrenheit, remaining fluid at 32 degrees, and having a density as high as 0.900, which the above described processes will produce.

We do not claim these processes, although they are the result of a large experience.

We *claim* the manufacture and use of the oil having the characters described from bitumens which do not yield paraffine by distillation.

No. 15,505.—LUTHER ATWOOD and WILLIAM ATWOOD.—*Improvement in the Production of Oil from Cannel Coal.*—Patented August 12, 1856.

The nature of this invention consists in modifying, by chemical processes conjoined with distilling operations, the proximate elements found in the distillates of coals and other bodies which yield paraffine, so as to produce an oleaginous body adapted in a high degree to lubricating purposes. A detailed description of this process would take up too much space to be given here.

The inventors say: We are aware that oils for lubrication have before been obtained from coals, bitumens, and schists, which afford paraffine in distillation, and they have been purified by acids and alkalies. These oils are solutions of paraffine in light oils or eupione, obtained in the first distillations, deriving their density and essential qualities from the paraffine. They do not resemble the heavier, uniform oils, which result from the decompositions and recompositions taking place in the same distillates at high temperatures, aided by chemical agents applied in large quantities at different steps in the manufacture, and we disclaim such oils.

We also disclaim mixed crude products heretofore obtained by distillation from schists, &c., and confine ourselves to a transparent, nearly colorless oil, having its boiling point above 600 degs. Fah., remaining fluid at 32 degs., and of a density above 0.864 at 60 degs., which is formed from coals, bitumens, and other bodies affording paraffine, in their treatment by the above processes.

We *claim* an improved oil, obtained by the processes substantially as set forth, from natural bodies, which, alone or when mixed, afford paraffine in destructive distillation, and which oil possesses the properties described.

No. 14,610.—AUGUSTUS A. HAYES, assignor to GEORGE ASHMAN and CHARLES PHELPS.—*Improvement in Processes for Extracting Oil from Cotton Seed.*—Patented April 8, 1856.

The inventor says: I do not claim any mode of crushing the matured seed, or expressing the oil from the kernels; but I *claim* the maturing

of the cotton seed after it has been separated from the cotton by heat artificially applied, so as to render the husk brittle and easily separable from the kernel.

No. 15,642.—CUMMINGS CHERRY.—*Improvement in Apparatus for Purifying Oil obtained from Mineral Coal.*—Patented September 2, 1856.

The crude oil is subjected to a distillation in the horizontal retort l, and as the vapor rises it is condensed in the copper heads J and L and passes into the receiver P, and thence into the rectifying chamber 2, which is furnished with trays *z*, on which are placed layers of unslacked lime. The vapor thence passes through a worm *e* in the second condenser R, and thence into cistern S, where it is mixed with diluted muriatic acid and stirred by means of a paddle Z. When the oil and the acid have been well mixed, the acid is permitted to settle down and the oil is drawn off into the cistern T, where it is well mixed with a weak solution of caustic lime by means of an agitator K; and when the oil has settled down, it is drawn off and pumped into a boiler, where it is exposed to the direct action of steam.

The inventor says: I do not claim any of the individual parts of my apparatus *per se;* but I *claim* the arrangement of the horizontal retorts I I, as combined with the copper heads J and L, of the rectifying chamber Q, of the steam conduits to the oil boiler, and of the agitating apparatus, in the manner and for the purposes described.

No. 15,644.—CUMMINGS CHERRY.—*Improvement in the Preparation of Drying Oil from Oils Extracted from Bituminous Minerals.*—Patented September 2, 1856.

The nature of this invention consists in boiling purified bituminous oil with litharge and common rosin, by which it acquires the requisite drying qualities which adapt it for the use in painting.

The inventor says: I do not claim the admixture of litharge or rosin to vegetable or animal oils in the manufacture of dressing oil.

But I *claim* preparing the oil, and for the purpose specified.

No. 15,418.—SAMUEL DOWNER and JOSHUA MERRITT.—*Improvement in Pyrogenous Lubricating Oils.*—Patented July 29, 1856.

The nature of this invention consists in dissolving caoutchouc, gutta percha, or bitumens, in the oils used for lubricating purposes, by which they assume the properties of fixed oils, and are not liable to evaporate when exposed to a current of air.

The inventors say: We disclaim the use of all mixtures in which caoutchouc is diffused without its chemical state being altered; and we confine the application of our discovery to the improvement of the qualities of the lubricating oils from coals, coal tar, and bitumens solely. Our improvement of these oils depends upon the perfect solution in

them of small portions of bitumens of the elastic kind, caoutchouc, or gutta percha, so as to prevent them from passing off in currents of air at common temperatures without diminishing their lubricating qualities in the slightest degree.

What we *claim* is the improvement of dissolving elastic bitumens, caoutchouc, or gutta percha, in the pyrogenic oils used as lubricators, substantially as set forth.

No. 14,042.—PHILO MARSH, assignor to Himself and SHUBAEL W. HOWLAND.—*Improvement in Treating Oils.*—Patented January 1, 1856.

The oil is introduced into wooden or lead-lined vessels, in which it can be boiled by means of steam-pipes running through them. It is mixed in these vessels with crude pyroligneous acid, in the proportion of a hundred gallons of oil to fifty gallons of crude pyroligneous acid, which latter has been obtained by the destructive distillation of wood. When the oil has been boiled with the pyroligneous acid for about two hours, it is left to cool off; and the pyroligneous acid, being heavier than the oil, settles to the bottom, and can be drawn off for further use.

Claim.—I am aware that acids have heretofore been used for clarifying oils; but my process does not rest in the use of acids alone, nor do I claim such.

What I *claim* for the purpose of defecating oil, is the employment, in manner substantially as above described, of the pyroligneic constituents of crude pyroligneous acid, except the acetic acid.

No. 15,243.—ANDREW LANERGAN.—*Improvement in Disinfecting Pastiles.*—Patented July 1, 1856.

This invention has for its object the manufacture of a permanent and portable form of solid matter, which may be ignited and applied to disinfect the air. The compound is made of—

24 ounces of nitrate of baryta.
4 ounces of chlorate of potash.
6 ounces of oxalate of soda.
4 ounces of chloride of barium.
1 ounce of oxyd of manganese.
2 ounces of shellac.
9 ounces of charcoal.

The whole being moistened with a solution of gum alcohol and water, and thoroughly mixed together, is to be moulded into proper forms.

Claim.—A disinfecting pastile or composition, made so as to be capable of being ignited and burned, and while burning to evolve chlorine or hydro-chloric acid gas, either in a free state or so combined or mixed with one or more other gases as to be capable of acting as a disinfecting agent.

No. 15,972.—JOHN ANTHONY GAUSSARDIA.—*Method of Preserving Dead Bodies.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim.

Claim.—Injecting the body with a mixture of arsenical pyroligneous acid, and then charging it with a current of electricity, for the purposes described, and then filling the coffin in which the body is placed, and which is afterwards heremetically sealed, with an alcoholic mixture of arsenic, together with the oils of cicuta and caryophylus aromaticus, substantially as described.

No. 14,464.—RICHARD MCMULLIN..—*Improvement in Processes for Making Elastic Rubber Cloth.*—Patented March 18, 1856.

The object of this invention is to supersede the necessity of cutting up the sheet rubber into strips, thereby obviating waste of material, economizing time and labor, and producing a fabric of greater beauty, strength, elasticity, and durability from a less quantity of rubber.

Claim.—Rendering vulcanized India-rubber, for the manufacture of shirred goods, adhesive by boiling it in a solution of potash, to remove the sulphur from its surface, thus fitting the sheet of rubber to receive a coat of cement, whereby it is caused to adhere firmly to the cloth or other fabric between which it is placed, in the manner and for the purposes, substantially as herein set forth.

No. 14,457.—EDWARD R. KERNAN.—*Improvement in Processes for Making Transparent Window Shades.*—Patented March 18, 1856.

The material which forms the ground of the fabric is first soaked in a mordant composed of starch and alum water. It is then dried and rolled up upon rollers to make it even and smooth. The paint laid on the cloth is made of the following ingredients:

Chinese Prussian blue	2 ounces.
Chrome green	6 pounds.
Acetate of lead	½ pound.
Balsam of fir	2 ounces.
Copal varnish (No. 1)	½ gallon.

The engraving represents the machine used for saturating the material with the paint. A is the paint box; C C are rollers which press the paint into the cloth; D D D D are scrapers.

Claim.—The making of flexible or pliable and semi-transparent oil-cloth for window shades, and other similar purposes, by a series of processes such as are herein described and set forth.

No. 15,950.—Tony Petitjean.—*Improvement in Processes for Silvering Mirrors.*—Patented October 21, 1856.

A detailed description of this invention would take up too much space to be given here; the main feature of it will be understood by reference to the claim.

Claim.—The employment of tartaric acid with ammoniacal nitrate of silver, in any manner substantially as described, for the silvering of glass.

No. 15,542.—Wilhelm Ziervogel.—*Improvement in Processes for Separating Silver from the Ore.*—Patented August 12, 1856.

The ores are heated in a calcining furnace containing two hearths *b* and *c*, both communicating by an opening *a*, which can be closed and opened, and through which the partly calcined ores can be let down to the lower hearth, where they are exposed to the full heat of the fire, the atmospheric air entering constantly through the doors *i*. When the calcination is finished, the ore is extracted from the furnace; and when cooled it is placed into strainers, and water is guided on to it. The liquid which passes through the filter contains sulphates of silver, of copper, and perhaps other metals; and the metallic silver is formed by placing pieces of copper into said solution, which decompose the sulphate of silver.

Claim.—The application of water or a solution of sulphate of copper slightly impregnated with sulphuric acid instead of lead, quicksilver or salt, hitherto used for this purpose, to the process of separating silver from copper and other ores, rendering thereby this separation easier, shorter, less expensive, and not noxious to the health of the operator.

No. 16,179.—Elie Joseph Hainaut.—*Process for Mashing Grain.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The described process of mashing the grain or grains enumerated, either separately or combined, as set forth, for the triple purpose of obtaining alcohol, yeast designed to be dried and pressed, and a mash sediment suitable for feeding cattle; the principal feature of which process consists in heating the said grain or grains in the macerator by steam applied externally, in the manner described, instead of injecting the steam directly into the mass, as has been heretofore the practice.

No. 15,953.—Joseph Poleux.—*Improvement in the Process of Coating Metals with Metals.*—Patented October 21, 1856.

When the articles to be cleansed are immersed in the acid, small particles of spelter are added thereto. The acid acts at once and rapidly on the spelter, holds in solution what it dissolves, and precipitates

a film of it on the minutest portions of the iron surfaces the instant the acid has cleansed them; which film protects such portions of the iron from any further action of the acid while remaining in it.

Claim.—In the process of coating iron ware with metallic alloys, the employment of muriatic, nitric, or sulphuric acid of the ordinary degrees of concentration in commerce, viz: muriatic of 18 deg. Baumé, nitric 38 deg., and sulphuric 66 deg., without diluting them, embracing the solution of the spelter in cleansing acid in the proportion and manner and for the purposes specified; and the passing the cleansed articles directly into the metallic bath without any intermediate treatment whatever.

No. 14,320.—WILLIAM LINCOLN.—*Process of Painting o Varnishing Woven Wire.*—Patented Feoruary 26, 1856.

This process gives the article a darker color on one side than what it has on the other, so as to improve the finish of the article.

Claim.—Exposing the wire-work cover or article after having been dipped in the varnish to a powerful blast, or current of air so brought to bear upon it as to pass through and clear its meshes of the liquid varnish, and pile it more on one side of each side of the wires than on the opposite side thereof, in the manner and so as to produce an effect as stated.

No. 15,594.—CHALES MOORE.—*Improvement in the Process of Preparing Linseed, &c., for Pressing, in Extracting Oil.*—Patented August 19, 1856.

The nature of this invention consists in pressing the pulp of prepared linseed or other seeds into cakes by means of moulds and formers, as represented at O and P, taking care not to press it so hard as to force out the oil, but merely pack it into cakes and make it occupy a smaller space so as to put a greater quantity into a press for one operation, by which a considerable saving in time is effected. By this arrangement, cotton sail-duck bags can be substituted for knit woollen bags, which also affords great saving in the material.

Claim.—The process of extracting oils and other liquids from the pulp of prepared or ground linseed or other seeds or substances. Forming it or them into cakes, by moulding and partially pressing or packing it or them, substantially as described, for the purposes set forth.

No. 16,189.—OBADIAH RICH.—*Process of preparing Tannate of Lime.*—Patented December 9, 1856.—England, December 18, 1854.

To tannate of soda in solution is added a sufficient quantity of chloride of calcium to combine with the tannin; thus chloride of sodium is formed in solution, while tannate of lime is precipitated. After

standing until the precipitate is all deposited at the bottom of the vat, the solution of chloride of sodium is drawn off and the tannate of lime is taken out. It is now to be well washed, dried, and pulverized, and is ready for transportation.

Claim.—The preparation of the tannate of lime, in the manner set forth, for manufacturing or commercial purposes.

No. 15,664.—JOSEPH MCCRACKEN.—*Improved Process for Stiffening Hat Bodies.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim.

Claim.—The process of stiffening wool hat bodies by acidulating the hat bodies before applying the stiffening, as a means of graduating and controlling the quantity and depth to which the stiffener can penetrate the body of the felt, in combination with a pearlash solution of shellac for stiffening the "tip" or "crown," and a pearlash and sal soda, combined with a solution of shellac, for stiffening the "brim," substantially as described, and for the purposes set forth.

No. 16,111.—CHARLES BICKELL.—*Process of Treating Feldspar for Manure.*—Patented November 25, 1856.

The nature of this invention will be understood by reference to the claim.

Claim.—The decomposing of feldspar by heating it with lime and phosphate of lime, for the purpose of obtaining potash or soda, either in the caustic or carbonated state, or for the purpose of obtaining a manure, in the manner substantially as described.

No. 15,598.—WILLIAM T. CLOUGH.—*Improvement in Apparatus for Evaporating Salt.*—Patented August 26, 1856.

The metal chambers A being filled with brine, the heated air passes from the grate into the space E, heats the chambers A on the top, and escapes through the flue I. The air in the flue B also becomes heated, and passes through passages *c* into the chambers A, and thence through the flues F and G to the smoke-stack I, the draught of which has a tendency to draw the hot air together with the steam evaporated from the saline mixture through the flue G to the stack. It is by this arrangement the chambers A containing the saline mixture are heated from above, instead of being heated from below; no incrustation can be formed, but the salt as it crystallizes drops to the bottom, and eventually can be raked into the aprons H.

Claim.—I do not claim the individual parts of the above described apparatus; but I *claim* the apron H, chamber B, and escape flues F F^1, arranged and combined with the pan A A^1 A^2, in the manner and for the purpose specified.

No. 15,411.—JOHN F. BOYNTON.—*Improvement in Apparatus for Solar Salt Evaporation.*—Patented July 29, 1856.

In the process of solar evaporation the covers B have to be removed from the vats A in fair weather, and then assume the position as indicated in the illustration. The space then occupied by the covers B was lost heretofore; but these covers can also be used for evaporation by conducting the salt water on to them through the troughs *c*, and letting it flow down into the vats A, during which time a part of the water will evaporate, and the salt will be deposited on the covers B.

Claim.—The use and application of the covers B of the salt vats A for the evaporation of salt water by solar influence, in the manner specified.

No. 14,813.—BENJAMIN L. HOOD and E. P. MONROE.—*Improvement in Salt Evaporators.*—Patented May 6, 1856.

The liquid to be evaporated is introduced through pipe R, and passes to pan E. The fire-box N is run into the cylinder A, and the latter rotated. The heat passes as shown by the dotted arrows. The liquid, in passing through the inner cylinder P, is, to some extent, evaporated thereby before passing to the pan E, where the outer surface of the outer cylinder is constantly effecting evaporation from the portion of the liquid at the top of said pan; the residuum of each partial evaporation effected by this cylinder, being of greater specific gravity than the body of the liquid at the surface of the said pan, at once sinks to such a position as will preserve it in equilibrio, the lighter portion of the liquid remaining at the top of the pan, thus causing the weaker portion of the liquid to be at all times presented to the evaporating surface. In this manner the operation will continue until the desired salt is obtained in the bottom of pan E.

Claim.—The construction of an evaporating apparatus of two concentric rotary cylinders, supplied with liquid heated, and operating as substantially as set forth, to effect evaporation from the weaker portion of the liquid and economize fuel.

No. 15,884.—JAMES L. HUMPHREY.—*Improvement in Salt Evaporators.* Patented October 14, 1856.

By the arrangement of the flues D, blower F, and chimney H, the products of combustion from the furnace B are drawn through the flues D below the surface of the liquid and caused to heat it and produce evaporation, and are then forced back again over its surface, where they produce further evaporation, and charge themselves with the evaporated moisture and carry the same away to the chimney. The scraper K can be drawn along the flues by means of the rods *d* to remove the crystals deposited upon said flues.

Claim.—1st. The arrangement of the furnace, the closed evaporating vessel, the flues D D, the blower F, and the chimney H, whereby the products of combustion are drawn through the evaporating

vessel below the surface of the liquid to produce evaporation of heat, and afterwards driven in the opposite direction over the surface of the liquid to produce further evaporation and carry off the evaporation to the chimney, substantially as described.

2d. The scraper K fitted to the flues and pipes which pass through the liquid in the evaporating vessel, to operate substantially as set forth.

No. 15,975.—JOHN R. HOPKINS.—*Improvement in Evaporators for Salts.*—Patented October 28, 1856.

In operating the apparatus, as represented in the engraving, the vat P, boiler A, and connecting pipes are charged with the solution, and a fire being kindled in the boiler A, the solution contained in said boiler becomes heated, and a current is thereby produced flowing through the boiler, pipes, and upper division of the vat P. This current is regulated by the stop-cocks *b* and *c* in the pipes B and C. The solvent capacity of the solution forming this current is alternately increased by heat while passing through the boiler, and diminished while passing through the upper division of the vat P, where its volume is expanded over a large surface; and the steam generated in the boiler is allowed to escape into the atmosphere, where its salts are precipitated and gathered by the converging hopper D.

Claim.—The apparatus for the evaporation of solutions whose solvent capacities are increased by application of heat, and diminished by cooling, consisting of a close boiler in combination with one or more vats or reservoirs, arranged substantially in the manner described.

No. 15,432.—CAMPBELL MORFIT.—*Improvement in Soap-Boiling Apparatus.*—Patented July 29, 1856.

The shaft C is mounted in a metallic socket leading to the exhaust pipe; it is provided with tubular arms and coils *r* and *s*, through which the steam passes from the hollow part of the shaft C, and which at the same time serve as a stirring apparatus. The steam escapes through the hollow part at the lower end of shaft C.

Claim.—The combination of the hollow shaft and tubular arms as a mixing, stirring, and heating twirl for dry steam, either in open or closed vessels, as described.

No. 15,980.—GEORGE C. LAWRENCE.—*Improvement in Soap Mixtures.*—Patented October 28, 1856.

Common soap is first boiled in a solution of borax, and when brought to a proper consistence, castor oil and flour are added to the mixture; when these parts are well incorporated, they are cooled, and when stiffened, borax in a pulverized state is added.

The proportions are 100 pounds of soap, 24 pounds of borax, 5 pounds of castor oil, and two pounds of flour.

Claim.—The combination of the soap compound described, with borax in a pulverized or granular state.

No. 15,951.—Augustus Pfaltz.—*Improvement in Rosin Soaps.*—Patented October 21, 1856.

For every pound of rosin one pint of a solution of soda may be taken; the rosin being melted, the solution of soda is added, and the whole well mixed by the agitator. Full steam being applied, the mass is agitated and the water evaporated, until a piece on cooling becomes solid.

The inventor says: I do not claim rosin soap either alone or mixed with other kinds of soap. I do not claim rosin soap as ordinarily made, by using as much alkali as will dissolve the rosin; nor does my claim extend to any of the compounds of rosin and alkali, which attract moisture.

I *claim* the described mode of producing a solid soap from rosin, viz: by the use, as specified, of an excess of soda or carbonate of soda, so as to form alkaline salts, with the pinic and sylvic acids, which compounds are rendered nearly anhydrous.

No. 15,838.—J. F. Boynton.—*Improvement in Soda Fountains.*—Patented October 7, 1856.

The generator being connected with the fountain by an attachment at L, the supercarbonate of soda, with the requisite quantity of water, is introduced through the opening M; the acid is introduced through the tube B into the vessel D. By turning the tube *g*, by means of a handle attached to the upper end of said tube, the plunger E is caused to descend a short distance into the chamber D, and a portion of the acid which is thereby displaced flows over the outside of the vessel down upon the carbonate beneath. This operation may be repeated until the gas is all liberated from the carbonate beneath, when the drip-valve *b* is opened to permit the escape of the acid which still remains in the vessel.

Claim.—1st. The described arrangement of the plunger E and vessel D, or any other arrangement substantially equivalent thereto, whereby the acid may be measured and delivered to the other ingredients in determinate quantities, as set forth.

2d. The spring drip-valve *b*, or its equivalent, whereby the vessel D is entirely emptied of acid after a charge is worked off, as set forth.

No. 16,051.—Gustavus Fincken.—*Sugar Draining Apparatus.*—Patented November 11, 1856.

The carriage containing the moulds *c* is wheeled to the cooler from whence the moulds are to be filled, and moved to bring each of the

moulds in tur under the faucet of the cooler. When the moulds are all filled, the carriage is removed to some convenient locality; and when the sugar in the moulds has sufficiently crystallized, the crank on each shaft E is turned, and the stops *h* are drawn from the moulds to allow the sirup to run from the moulds and to collect in the vessel A.

Claim.—Employment for the reception of the moulds of a wheel-carriage composed of a box or vessel A, with seats *d d* to receive the moulds and a frame D to keep them upright, and with stoppers *h h* so applied within the box or vessel as to enable several to be inserted in or withdrawn from their respective moulds simultaneously by a crank, or its equivalent, at one end or side of the carriage, as described.

No. 15,694.—SAMUEL H. GILMAN.—*Improvement in Pans for Evaporating Sugar.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The evaporator formed by the combination of a train of open boilers N O P Q—the boiler Q to receive the first, and the boiler N to receive the last fire; and each of the boilers in succession presenting an extent of surface to the fire in the reverse ratio of the intensity of the fire, as well as of its (the boiler's) cubic capacity, constructed and arranged substantially as described.

Also, the construction and use of a flue *x*, formed by a series of open boilers N O P Q, and being in a series of sections of its length, divided longitudinally and vertically by water-legs or strata of juice into two or more flues or spaces; the number of flues increasing from one section to the next, as the distance from the furnace increases, and the number of sections into which it is so divided corresponding to the number of boilers in the series, and each section being shorter than the boiler in which it is placed, so as to leave a space between each section where the flue *x* is undivided in its transverse section, substantially as described.

No. 14,717.—SAMUEL H. GILMAN.—*Improvement in Sugar Evaporators.*—Patented April 22, 1856.

The pipes *c* and *b* form an annular steam passage S, through which the steam passes, being condensed on its way by the colder temperature of the liquid in the pan, and falling in the form of water into the water chamber *q*.

Whenever the greater pressure in the steam chamber P forces the water in its reservoir *m* through the syphon pipe *d* d^1 d^2, the action of discharging said water into the main condensed water pipe *n* produces a tendency to a vacuum in the annular space, and thus tends to draw from the condensed water chamber *q* any water that it may contain; and in like manner, if the discharge from the condensed water chamber *q* through the annular space should be the most rapid, its effect in passing the end of the syphon leg *d* would be to form a partial

vacuum in the syphon pipe, and thus draw the water from reservoir *m* in the steam chamber.

Claim.—1st. The treble bottom *g h i*, forming the steam chamber *p* below, and the condensed water chamber *q* above, in connexion with the steam pipes *c*, open at both ends, and fixed into the division plate *h*, and with the evaporating pipes *b* closed at the top and open at the bottom, and fixed into the tube-plate *g*, all combined and for the purposes set forth.

2d. The compensating condensed water syphon pipe *d* d^1 d^2, with one leg d^1 starting from the reservoir *m* in the steam chamber, and passing up through the division *h* and tube-plate *g* into the pan to about one-half the height of the evaporating pipes *b*, then turning down through the tube-plate *g*, and in the same vertical plane with and terminating in and near the lower end of the condensed water pipe *n* of the condensed water chamber *q*.

No. 15,421.—Samuel H. Gilman.—*Improvement in Sugar Evaporators.*—Patented July 29, 1856.

The nature of this invention consists in the arrangement of a train of open kettles L M N O R, set lengthwise in a long kettle B C, which is thus divided into two side kettles, and which by a channel way (figure 3) that leads from the division B into the division C, underlies the train, and forms the sides and bottom of the flues A, passing direct from the furnace under the train of kettles, and by the side kettles B and C and the vertical juice space S, and returning through the flues D and E, and ultimately escaping through the maine flue K into the chimney. The kettle C (figure 2) communicates by a pipe S with the central kettle O next to the battery, thus filling this kettle hydrostatically from a large body of assimilated juice. The kettles are provided with troughs I and J, which catch the overflow caused by the brushing of said kettles, and lead the same into the troughs F and G.

Claim.—The combination of the long kettle B C with the train of kettles L M N O R and pipe S, the serpentine channel T U V, and the fire-flues A D E K, in the manner and for the purposes specified.

2d. The combination of the troughs F G H I and J with the train of kettles L M N O R and the long kettle B C, in the manner and for the purposes specified.

No. 14,129.—Ari Davis and Asahel Davis and Charles Cunningham, assignors to Alfred W. Adams, Josiah B Richardson, and George W. Pettes, and Sherburne T. Sanborn.—*Improvement in Hydro-Carbon Vapor Apparatus.*—Patented January 15, 1856.

Hydro-chloric acid is placed in the generator G^1, and hydro-carbon is placed upon its surface, as seen at Y; the basket C is then depressed by means of rod D, and the zinc is introduced into the basket; it is then drawn up into the proper position, and the gas-holder B inserted. The gas begins to form, and as it passes up through the hydro-carbon

it becomes sufficiently impregnated therewith to burn with a luminous flame, the heat generated by the action of the materials raising the hydro-carbon to the temperature required.

Claim.—Employing the heat set free by the generation of the hydrogen to heat the hydro-carbon used to impregnate the nascent gas, as set forth.

No. 14,135.—DAVID H. KENNEDY.—*Improvement in the Arrangement of Tan Vats.*—Patented January 22, 1856.

The tanning liquor is conducted through pipe K and branch pipes M to the vats of each series, and runs from vat to vat, entering at the bottom through branch pipes L, and passing out at the top of each until it reaches the last, where it is discharged; the branch tubes N communicate through pipe P with the top of one vat and the bottom of the other. Stop-cocks are placed in the pipes M between the branch tubes; the branch tubes N are for the purpose of allowing the liquor to flow out of one vat into the branch pipe, to be conveyed past one or more vats of the series, if desired, and then back into the succeeding vats, to flow on as if it had not thus been interrupted; and in this case the cock of the branch pipe immediately back of the long egress tube N of the vat, and that of the branch pipe immediately in front of the ingress tube of the vat, into which the liquor is to be run, are open; all the intermediate cocks, except those in the tubes from the vat out of which the liquor flows, and to the vat into which it is conducted, being stopped.

Claim.—What I claim as my invention, and desire to secure by letters patent, is the arrangement of a tank, the tan vats, the main supply pipes and their branches, substantially as herein set forth whereby the tanning liquor may be caused to flow regularly through a series of vats, from one to another, without the aid of pumps, and any one or more of the vats may be insulated from the system of circulation, for any required length of time, without impeding a regular circulation of the tanning liquor through the rest.

No. 15,448.—JOSEPH WHARTON.—*Improvement in Apparatus for Purifying White Oxyde of Zinc.*—Patented July 29, 1856.

The nature of this improvement consists in conducting the products of combustion from the furnace A through flues B and C into a vessel D D^1 provided with helical or screw-like passages, having its bottom covered with water. On the surface of this water the products of combustion from the furnaces are forced to impinge a number of times in succession by reason of said helical passages. The impurities are caught by the water and sink to the bottom, and the white oxyde of zinc passes on, and eventually issues pure at the other extremity of the chamber.

Claim.—Cooling white oxyde of zinc, and separating it from impurities, by causing the products of the furnaces to impinge upon a surface of water, in the manner substantially

V.—CALORIFICS.

No. 15,155.—Jesse D. Wheelock.—*Improvement in Coal-Heating Bakers.*—Patented June 17, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The use of the descending flue or tube E in two parts, the one sliding into the other, so that the same can be lengthened or shortened at pleasure for the purpose of passing off the fumes and smoke of the coal burned in the chamber F, in combination with the said chamber F and the perforated bottom H and top D for baking purposes, substantially as shown.

No. 14,386.—Lafayette Blair.—*Improved Hot-Blast Apparatus.*—Patented March 11, 1856.

The heated gases are received into the tunnels *b*, and the cold blast through the tube *f*. The cold blast will be diverted in its course by the division plates *d* in the direction of the arrows, as represented in fig. 2; and from the straight form of the tunnels the cleaning is easily accomplished.

Claim.—The tunnels *b*, diaphragms *h i j k l* and *m*, division plate *d*, and casing *e*, arranged and combined as herein described and for the purpose specified.

No. 14,875.—Oliver L. Lawson.—*Improvement in Blow-Pipes.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and he engraving.

Claim.—In combination with the adjustable valve 1 the cylinder, the adjustable cock E in the tube D, so that a regulated blast may be had, whether sharp or mild, substantially in the manner and for the purpose set forth.

No. 15,774.—Stewart B. Palmer.—*Improvement in Blow-Pipes.*—Patented September 23, 1856.

The piston of the pump I is operated by a treadle connected with the rod S, and the wind is forced into the chest E and through the pipe G into chest F, and thence through pipe O into the nozzle P—the chest F serving as a reservoir, from which a continuous stream, equal in velocity, passes through pipe O.

The inventor says: I do not claim separately the pump or the mode of operating the same nor do I claim the arrangement of the nozzle; for these have been used in similar or analogous devices.

But I *claim* the two wind-chests E F, connected by the pipe G, provided with the faucet H, when said chests, thus connected, are arranged and used in connexion with the pump I, reservoir M, wick tubes N N, and nozzle P connected with the pipe O, substantially as described for the purpose specified.

No. 14,403.—HORATIO N. MACOMBER.—*Improved Spirit Blow-Pipe.*—Patented March 11, 1856.

Immediately below the main jet-pipe is another jet-pipe *b*, (the lighting jet-pipe,) with an enlarged mouth, so that the vapor entering the said pipe *b* from the vapor pipe E (which latter connects with the vessel containing the vapor) may be consumed with such little velocity at the discharging mouth, that the flame of said vapor will rise into the current flowing out of the jet *a*. Thus the powerful current of vapor will be maintained, inflamed by means of the said lighting jet.

Claim.—Combining with the vapor jet *a* of a spirit blow-pipe an air jet *f* and a mouth-tube *g*, so applied to said vapor jet that air may be blown from the lungs of a person directly into the inflamed current of said vapor jet, in order to control, elongate, or reduce said current, and increase its heating powers, as specified.

I also claim arranging the air jet concentrically within the vapor jet, in order that the effluent current of air may pass into a hollow tube or stream of vapor and flame.

I also claim combining with each main jet tube a lighting vapor jet tube, arranged so as to operate therewith as specified.

No. 15,633.—JOHN LIBLONG assignor to EDWARD BROWN and JAMES R. CASE.—*Improved Device for Preventing Liquids from Boiling over the Sides of Vessels.*—Patented August 26, 1856.

When the liquid in the stew-pan A rises, it will pass through the opening *d*, in the top of the cap B, and will fall down on the outer side of the cap, and pass again into the stew-pan through spaces *e*, between the lower edge of the cap and the stew-pan. If the liquid rises rapidly, the deflecting plate C directs it downward as the liquid will strike against it. The flanch *c* directs the liquid outward, and towards the edge of the cap.

Claim.—Cap B placed within the vessel A, and constructed and arranged substantially as shown and described, for the purpose set forth.

No. 14,271.—HENRY NEWEHAM.—*Improvement in Caldrons.*—Patented February 12, 1856.

The water in the caldron A almost surrounds the fire arranged below the arch B, and thus heat is economized.

Claim.—Constructing a caldron by giving the bottom thereof an arched form, in the manner described, and for the purposes specified.

No. 14,074.—ABNER WHITELEY.—*Improvement in Candle-Sticks.*—Patented January 8, 1856.

When the candle has burned to an end in the socket *e*, the cup D holds the grease which has dropped into it while the candle was burning down, until the flame begins to melt it, when it will flow into socket *e*, through the openings *g*, and to the flame to be burned.

When a new candle is inserted into the candle-stick, (warmed by the burning out of the previous candle,) the slide C can be drawn up (see fig. 3) so as to close up the openings *g* and to support the candle; when congealed, the candle is firmly held by the socket *e*, and the slide C can be shoved back.

The inventor says: I do not claim a cup or bowl, having three wire springs extending up from the bottom of the same; or a set of metal springs extending up to support the candle-end.

But, 1st. I *claim* the socket *e e*, having the openings *g g*, as described, and for the purpose set forth.

2d. I claim the combination of the socket *e e*, openings *g g*, and slide C C, as described, and for the purposes set forth.

No. 14,641.—THOMAS PRIESTLEY, assignor to DANIEL HOLDEN.—*Improvement in Oil Cans.*—Patented April 8, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—Combining with the oil vessel A, and arranging with respect to the discharging tube B thereof, a weight C, whereby, when said oil vessel is overset, the gravitating power of the weight may move the discharge tube into a position from whence no fluid or oil may escape from it.

I also claim arranging the air inlet-tube D, so that its openings into the air vessel, and its openings *c* for the reception of air, shall be on opposite sides of the axis of the vessel, or with respect to the weight and oil discharge tube, essentially as specified.

No. 15,986.—JAMES M. THOMPSON.—*Improvement in Oil Cans.*—Patented October 28, 1856.

The reservoir A is filled with oil at the cup *e* by unscrewing the spout E; and when the can is inverted, the oil will be discharged through the spout E, air passing into the chamber through the tube D, and thence into tube C, to fill the space left by the escape of the oil through the spout.

The inventor says: I do not claim arranging a chamber at or under the bottom of a can, and having a tube to extend therefrom through the oil can and into its spout, the said chamber having an air-tube passing transversely into it, or instead thereof, being connected with the oil reservoir and the tube by valve openings provided with valves,

these contrivances or oil cans have had no drip or catching cup or cess to catch the oil which may flow down outside of the discharging out; whereas my improved oil can is provided with such cup, and makes an element or part of its combination.

Nor do I claim that combination and arrangement of a catching cup recess, a chamber and, two tubes, with the oil reservoir and discharging spout of an oil can, as the whole is explained and represented letters patent granted to me.

But I *claim* my described improved arrangement of oil-catching cup recess *e*, tube D, chamber B, tube C, reservoir A, and discharge be E, the same being productive of advantages, as stated.

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o. 15,206.—SETH E. WINSLOW.—*Improvement in Safety Cans for Burning Fluids.*—Patented June 24 1856.

The conical form of the strainer for excluding the flame from the essel allows the lamp to be filled easily, and its being placed above e fluid prevents chemical corrosion from taking place.

The inventor says: I do not claim the wire-cloth strainer placed at e mouth or opening of cans, or at the bottom of the spout of cans, or long tube of wire cloth extending to the bottom of a lamp, or as rming part of said tube, for this use of it has been made by others.

But I *claim* the conical form of the wire-cloth strainer A, with a nall aperture B at its apex or side, which may be adapted to the wer part of the lamp tops and to cans; and I do hereby disclaim ıy application of said conical strainer to the caps of a lamp with an ifice in said cap through which the lamp may be filled.

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o. 14,619.—SANDFORD S. PERRY.—*Improvement in Charring Wood.*—Patented April 8, 1856.

The kiln D is constructed so as to be as nearly air-tight as possible. he furnace A contains iron pipes for the purpose of heating the air to e introduced into the kiln. The cold air is exhausted from the bottom the kiln either by means of the fan E or the chimney G.

As soon as the process of charring the wood by means of the heated r is completed, the apertures leading from the flue into the kiln and om the kiln into the fan are to be stopped until the kiln is entirely oled.

Claim.—The process or mode of charring wood, or, as it is commonly lled, "burning charcoal," by the application of hot or heated air to e wood to be charred, as above described.

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o. 15,726.—WILLIAM BROWNELL.—*Improved Chimney Cap.*—Patented September 16, 1856.

The shaft A is contracted at its upper end so as to form a conical p B, which is surrounded by another conical cap C, which is covered

and provided with a number of ventilating holes *b*, arranged in such a manner that the water passing through these holes cannot enter the conical top B. Another series of holes *a* is arranged in the bottom of the cap C, through which the air can pass up and down, and which allows any water coming in through the apertures *b* to escape.

Claim.—The described construction and arrangement of the ventilator, for the purposes specified.

No. 15,536.—GEORGE W. THATCHER.—*Improved Chimney Cowl.*—Patented August 12, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The introduction of one or more central tubes, with their caps or frustums enclosed within an outer tube with its cap or frustum, and extending downwards within the outer tube, so as to increase the upward draught and afford protection from winds and storms.

No. 15,916.—THOMAS W. CHATFIELD.—*Improved Chimney Cowl.*—Patented October 14, 1856.

The nature of this invention consists in the arrangement of two inverted funnels B and D and a short cylinder C, in place of ordinary cones, for the purpose of creating a more powerful current of air between the body of the ventilator and the inverted funnels than can be effected by the use of ventilators constructed according to the various other modes now in use.

The inventor says: I am aware that a patent was granted to Braer & Simonds, June 13, 1854, as also one patent to F. Emerson, July 3, 1847, as well as other patents and rejected applications, wherein the use of cones is described, which I do not claim.

But I *claim* the improvements I have made upon said patents and rejected applications, by the use of two inverted funnels B B and D D, together with the short cylinder C C, arranged as described.

No. 15,584.—CHARLES H. WATKINS.—*Improved Self-Clearing Chimney Cowl.*—Patented August 19, 1856.

The revolving top B resting on spindle C^1 is turned by action of the wind on vane E, and causes the parts C C of the bolted legs H H to rub against the rounded part of the revolving top B and keep it clear of soot or other substances that may collect inside the revolving top B.

Cluim.—One or more legs H H, having the circle of the revolving top B, and connected with a common spindle C^1, as described and set forth.

No. 14,171.—CHARLES F. THOMAS.—*Improved Chimney Cowls.*—Patented January 29, 1856.

The object of the first part of the claim is to divide the effluent current of smoke into two currents, so that when part of the smoke is suddenly blown back into the cowl it will pass out of the protected half of the open end of the cowl. The object of the second part of the claim is to maintain the cowl more steady. The object of the last part of the claim is to strengthen the wing and prevent it from being bent by the wind.

The inventor says: I do not claim a turning cowl, applied to the top of a chimney or flue and having a wind-vane attached to it; but I *claim* arranging the vane so that it shall extend directly across the discharging aperture of the cowl or ventilator and divide such aperture, in manner and for the purpose hereinbefore explained.

Also, constructing the vane of two wings flaring from one another as they extend from the cowl, as specified, the same being for the object or objects as hereinbefore stated.

Also, arranging each of the wings so that it shall extend down below the discharging aperture of the cowl, and from and around the external surface of the cowl, substantially as described.

No. 16,246.—PATRICK MIHAN.—*Improved Chimney Cowls.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claims and engraving.

The inventor says: I do not claim surrounding the main flue of a chimney with an air flue, whereby air may be thrown upward between the two, and over or above the discharging or upper end of the smoke flue, in order to promote the draught. Nor do I claim arranging an inverted cone in or above the discharging end of a smoke flue.

I *claim* the arrangement of hollow frusta B C with respect to each other a smoke flue A, and an inverted cone deflector D, placed at and in the upper end of said smoke flue A, as set forth.

I also claim arranging on the flat top surface of the deflector D, as described, an enclosing deflecting guard E and a discharge spout F, the same being disposed so as not only to gather the water which may fall on the top of the cone and discharge it in one stream upon the inner surface of the upper external frustum B, but so that the guard may serve to deflect, as described, a current of air, which may strike on the top of the cone D.

I do not claim providing a ventilator or chimney cap, with a cap plate, elevated on columns or rods extending above the rest of the cap or ventilator.

I claim providing the cap plate G, when it is directly over the conical deflector, with an opening, while the remainder of the cap plate may extend over the opening between the cone D and the outer cone B, as described, the same being to allow air to pass through the cap plate and impinge on the top surface of the cone D, in manner and for the purpose as described.

No. 15,458.—THEODORE F. ENGLEBRECHT, assignor to himself and THOMAS C. NYE.—*Improvement in Chimney Dampers.*—Patented July 29, 1856.

The nature of this invention consists in suspending conical deflectors centrally in the perforations of perforated dampers in fire-places, which will cause a greater share of the heat from the gaseous products to be deflected into the room than would be the case by not using said deflectors.

Claim.—In perforated dampers for anthracite coal grates, the supplemental perforations consisting of the suspended conical deflectors, as set forth.

No. 15,645.—HEZEKIAH CHASE.—*Improved Apparatus for arresting Carbon in Chimneys.*—Patented September 2, 1856.

The pipe D being filled with water from a reservoir, said water passes through box E, and eventually through the jet pipes F, and is thrown in numerous jets into the chimney A. In falling down, the greater part of the water is collected on the deflector C, and runs down from it in a thin circular sheet, and into the reservoir B. The smoke in passing up the chimney strikes against the deflector, comes in contact with the sheet of water running from the deflector, the volatile parts of the smoke are condensed, and the carbon is precipitated into the reservoir B.

The inventor says: I do not claim the introduction of jets of water into a chimney for the purpose of arresting sparks or carbonaceous matter, as I am aware that such has been accomplished before on the chimneys of locomotive engines. My invention is more properly an improvement on that for which letters patent were granted June 19, 1847, to James A. Cutting and George Butterfield, of Boston, Massachusetts. The most essential feature of my improvement, and that which differs from anything in the apparatus of Cutting and Butterfield, being that part of my device whose office is to produce a thin sheet of water close to and surrounding the edge of a meniscus deflector placed over the mouth of the discharging flue within the chimney. Nothing of this kind is found in the invention of Cutting and Butterfield, wherein streams of water only are employed. In my improved smoke-consuming apparatus I use streams and a deflector, as do Cutting and Butterfield; but in addition to the principle common to both, I so arrange the jet pipes that the jets of water may fall on the top of the deflector and be discharged over its edge in a thin sheet.

I *claim* arranging the jet pipes, the deflector, and discharge flue, so that the water may first fall on the top of the deflector and be discharged in a thin sheet over its edge and around the mouth of the discharge flue, as set forth; and this whether the streams fall directly downward from the jet pipes and upon the deflector, or whether they may be first discharged upward, and next be caused to fall back and upon the top of the deflector; and so that such streams may serve not only to arrest carbonaceous matters which may escape or pass by and

se above the deflector, but to return them and cause them to be rown into the receiver B after they have fallen with the streams on the said deflector.

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o. 14,650.—JACOB COHEN.—*Improvement in the Arrangement of Grates and Dampers for Chimneys.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and e engravings.

The inventor says: I am aware that dampers are of common use in noke-stacks to furnaces, steam-boilers, and stoves, suspended centrally that they may entirely cut off the escape passage, or limit that passge equally on both sides of the damper; and I do not, therefore, claim e centrally suspended damper.

I am also aware that dampers are in common use in chimneys where ates for burning anthracite and other coals are used, such dampers eing limited, however, to the closing of one portion of the escape pas ge, or diminishing only the half of that passage; and I do not, therere, claim arranging dampers in chimneys where grates are used.

But I *claim* the arrangement of the centrally suspended damper C relation to the grate B and the surfaces of the escape passage into e chimney, as herein set forth.

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o. 15,779.—JOSIAH A. ROYCE.—*Self-Regulating Draught for Chimney Tops.*—Patented September 23, 1856.

The nature of the invention will be understood by reference to the laim and engraving

Claim.—The application to the top of a chimney A, or draught flue, of frame B, having one or more turning slats or dampers C hung in it; uid frame being provided with a rudder F, so as to be always turned the proper position by the action of the wind; and the dampers being ombined with a spring mast D, with sail on top, so as to be closed ore or less by the action of the wind, and automatically opened uring a calm, substantially as and for the purpose set forth.

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o. 15,519.—CYRUS F. KNEELAND.—*Improvement in Coal-Hods.*—Patented August 12, 1856.

This invention consists in covering the wooden bottom E of a coalod with sheet metal D, which is turned down at the edges over the ood, and kept from rising from its place by the lugs F fastened to the ood. The bottom is kept in its place upon a clinch by nails H and J assing through the sides of the hod, which are themselves secured om working out by a band I around the joint which covers the heads f said nails.

Claim.—I do not claim the combination of wood and iron or other netal in any construction whatever; but I *claim* a coal-hod with a wood nd metal bottom made and secured in its place, substantially in the anner as set forth.

No. 14,828.—GEORGE PIERCE.—*Improvement in Cooking Apparatus.*—Patented May 6, 1856.

The nature of this invention consists in combining the stove, as shown in the engravings, with the roaster *a*, which has been patented by Samuel Pierce, on the 12th day of July, 1838, by which combination the top radiating heat is employed for the purpose of baking.

Claim.—The employment of the double oven, arranged and combined with the roasting apparatus, substantially as herein set forth, and for the purposes described.

No. 16,112.—THOMAS G. CLINTON.—*Improved Alcohol Cooking Apparatus.*—Patented November 25, 1856.

O represents a cup which contains the alcohol chamber A, and the wick chamber I containing the wick. When the latter is lighted a draught of air passes through apertures D and central draught tube K L, at the same time that another current passes through the passage G F, thus producing an intense heat. The flame can be extinguished by closing the apertures D.

The inventor says: I do not confine myself to the arrangement of the parts E D C G, as shown, because these parts may be arranged otherwise to do the very same duties.

I *claim* an alcohol burner, arranged in its several parts substantially as described and represented, or in any equivalent manner, for the purposes and effects set forth, irrespective of the method by which alcohol is supplied to the chambers A and I.

I also claim the internal pipe B, or its equivalent, arranged as described in relation to the tube H, and for the purpose and effect set forth.

No. 15,156.—EDWARD WHITELEY.—*Improvement in Water-Heaters surrounding Fire-Pots of Cooking Apparatus.*—Patented June 17, 1856.

A diagonal partition O is placed between the openings of the pipes K and L into the heater, whereby the water that enters at the pipe K is forced to traverse round the entire heater in contact with the heated corrugated surface E of the heater before it can escape by the pipe L.

Claim.—1st. The diagonal partition O between the pipes K and L, operating in the manner and for the purpose specified.

2d. The inclined roof of the heater for the purpose of expelling the air therefrom, in the manner substantially as described.

No. 14,622.—EDWARD WHITELEY.—*Improvement in Boilers for Cooking by Steam.*—Patented April 8, 1856.

E is a depression in the bottom of the vessel B, into which rises the tube F, the top of which is surrounded by and covered with the cap G, thus forming a trap which permits the water of condensation to pass,

ut not the steam. When the boiler is to be used for the purpose o eating water, the trap G is removed, and the pipe F is closed by the ap I.

Claim.—The trap G and cap I, as arranged and applied to the vessel 3, whereby the latter may be employed either as a boiler or a steamer, s set forth.

No. 14,340.—W. W. ALBRO.—*Improved Apparatus for Cooking with Quick-Lime*—Patented March 4, 1856.

Coffee may be made between the two vessels A C; meat and vegetables are placed within the vessel D; I represents the quick-lime. Water s then poured through tube F, which falls through the perforated tube 3 in a shower upon the quick-lime, and the heat evolved by the slaking f the lime cooks the articles in vessel D and boils the coffee.

Claim.—The apparatus or device formed of the vessels A C D, constructed or arranged substantially as shown and described for the purpose specified.

No. 14,510.—AZEL S. LYMAN.—*Improved Method of Cooling and Ventilating Rooms, &c.*—Patented March 25, 1856.

The object of this arrangement is the production of a blast or current of cool air without mechanical aid, the air descending in the tube F with a velocity due to the difference of temperature at B and E.

Claim.—The combination of a condensing conduit F, or cold-air flue, with a reservoir D for containing cooling materials, substantially in the manner and for the purposes described.

No. 16,010.—PETER C. GUIOU.—*Improved Cowl or Draught-Accelerator for Steamers.*—Patented November 4, 1856.

The conical tube A is inserted into the horizontal flue C, the jacket B slipping over said flue; when the steamer or locomotive is in motion, a draught of air will pass through the tube A and flu C; this current, as it passes out at the smaller end of tube A, produces a suction and strong draught in the lower upright chimney D, causing a steady draught through the furnace of the steam boiler. When the steamer or locomotive is stationary, the smoke from the perpendicular flue B passes around the conical tube A and out of the opening E.

The inventor says: I do not claim any of the several devices, surfaces, or parts described, separately.

But I *claim* their combination constructively, in the manner and for the purposes described and shown.

No. 14,181.—SOLOMON BERNHEISEL.—*Improvement in Corn-Dryers.*—Patented February 5, 1856.

This improvement consists in bringing the heated air from the furnace in contact with a stream of shelled corn, passing down pipes fur-

nished with perforations, s that moisture in the grain (in the form of steam) may be passed by pipes exterior and interior to the aforesaid pipes as well as through the stream of corn.

Claim.—The perforated pipes Nos. 2 and 3, in combination with the hopper F, placed above the hot-air chamber A, as described, so as to allow the air to pass between the inner perforated pipe and the smoke-pipe No. 1, while the hot air from chamber D passes up between the outer perforated pipe and the exterior pipe or casing No. 4, substantially in the manner and for the purposes set forth.

No. 14,494.—CHARLES W. DAVIS.—*Improvement in Fruit or Grain Dryers.*—Patented March 25, 1856.

The rim C forms a parabolic curve, in order to carry back the fruit forced up the inclined sides of the rotating earthen cone D. The top or rim C may be taken off by simply unscrewing it. The pipes G G, together with the stove S, keep the cone hot.

The inventor says: I do not claim the separate parts of the above apparatus as my invention; but I believe their combination, as applied for the purpose of drying fruit or grain, to be novel and useful.

I *claim* the inverted earthen cone D, (fig. 2,) having an adjustable parabolic rim C, with or without the hoop F, operating substantially as described, and for the purposes specified.

No. 15,259.—JOHN C. PEDRICK.—*Improved Apparatus for Drying Grain in the mass.*—Patented December 16, 1856.

In using this apparatus, the lenticular-shaped vessel B^1 is thrusted into the midst of that part of the grain which is found to be heating, or which has become wet, and an exhausting apparatus being applied to its mouth, the foul air is abstracted from the grain.

Claim.—The double convex lenticular vessel, or perforated exhaust chamber B^1, or its equivalent, constructed and operated as set forth, for drying grain in bulk, in granaries or in vessels.

No. 14,688.—STEPHEN V. APPLEBY.—*Improvement in Machines for Drying Wet Grain, &c.*—Patented April 8, 1856.

n m n^1 m^1 are plates fastened to the side of the walls W W, and covering the ends of the cylinders partly up for the purpose of preventing in some measure the free passage of cold air through the heated cylinders. *p* p^1 p^2 are openings, covered with wire gauze, to allow the air and vapor to escape. *g g g* g^1 g^1 g^1 are gratings to increase the distance the grain has to fall. *h* h^1 h^2 are gratings to lead the grain into the cylinders. P P^1 are pipes which conduct the cold air into the flues.

Claim.—The application of revolving cylinders A A^1 A^2 A^3, situated in a heated flue X, with their ends projecting into flues Z^1 Z^2 Z^3 Z^4, into which cold air is forced, and so arranged that grain or other similar substances put into the top cylinder will slide through the same, and then fall into the next cylinder, and so on from one to the other, being,

in its passage, alternately subjected to the action of heat while in the cylinder, and to the action of cold air while falling from one cylinder into the other.

No. 15,331.—SAMUEL M. ECHOLS.—*Improvement in Fire-backs of Fire-places.*—Patented July 15, 1856.

The nature of this invention consists in the employment of a back-piece B in the fireplace F, said back-piece swelling towards the front, similar to two logs placed one upon the other, for the purpose of throwing out heat and economizing fuel.

Claim.—The arrangement in the chimney before the back plate *a* of the removable double cylinder and plane fire-back B.

No. 15,089.—DAVID RUSSELL.—*Improved Method of Applying Horse Power to Fire Engines.*—Patented June 10, 1856.

Horse power being applied to the end L of shaft J, the latter is rotated by means of the friction between the roller 3 and track A; friction being produced by the weight of fly-wheel M. A reciprocating motion is thus given to the piston rods *r r r r* of the pumps *d d d d* by means of the devices, as clearly shown in the engravings.

The inventor says: I disclaim the several elements composing my engine separately considered. But I *claim* the arrangement of the series of pumps *d d d d* with the circular trainway A, and the mechanical devices actuating the pistons, substantially as and for the purposes set forth.

No. 14,447.—CALVIN DODGE.—*Improvement in Fireplaces.*—Patented March 18, 1856.

The claim and engraving sufficiently explain the nature of this improvement.

I do not claim the contracting of the vent or throat of the chimney, as that is well known as a device; but I *claim* the use of a deep recess A B C D, or chamber, placed back of the fire-basket L of the grate, and out of the reach of the draft, in combination with the horizontal covering F over the recess and fire-basket, extending down below the mouth of the chimney, constructed and arranged substantially as hereinbefore described, for the purpose of consuming the smoke and causing the ignition of the gas which would otherwise be lost, and thus increasing the amount of heat thrown into the room, and by the slow combustion of the fire effecting a great saving of fuel.

No. 15,362.—JOHN W. TRUSLOW.—*Improvement in Fenders for Fire-places.*—Patented July 15, 1856.

A represents a jointed or hinged fender, hung upon hinges at B, in a recess D. The spring E is attached to the back wall of the recess for

the purpose of pressing out the fender when wanted, the sliding panel F covers the fender and recess when the panel is down. By this arrangement the fenders are always convenient for use when wanted, and can be secreted so as not to be observed when out of use.

Claim.—The hinged folded screen or fender within the recess in the jambs, in combination with the spring in rear of the screen, and the sliding panel in front of the same.

No. 14,252.—Lea Pusey.—*Improved Method of Extinguishing Fires.*—Patented February 12, 1856.

The water-spout A, descending from the roof D of a building, is made of sufficient thickness of metal to resist the water pressure, and is furnished at top and bottom, and, if desired, at every story of the building, with coupling-joints for hose attachment. The couplings B at every story are provided with caps to be used when the coupling-joint is not required.

Claim.—The adaptation of the water-spouts of buildings to the purpose by means substantially the same as those herein described.

No. 15,271.—Robert B. Armitage.—*Improved Method of Extinguishing Fires.*—Patented July 8, 1856.

A main-pipe A for the supply of water extends from the ground to the top of the building. From this main-pipe, and at right angles to it, at a point level with the ceiling of the room, the branch-pipe B proceeds to a central part of the ceiling. From the terminus of the pipe B the arms C extend across the middle line of the ceiling, and terminate by a series of jets y^1 y^2 y^3, &c. The valve D is placed in the branch B and regulated by a weighted lever E, which is supported by a continuous cord x x^1 x^2 x^3, &c., running through staples around and across the ceiling, which cord is made of combustible material; and, in case of fire, the cord is easily burned, when the lever E at once falls and opens the valve D, and the water will escape through the jets y^1 y^2, &c.

The inventor says: I do not claim the cords and lever or the valve, they having been long in use for other purposes; but I *claim* the arrangement of the main-pipe, with the branch-pipe, the arms, and jets, which, in connexion with the cords and lever combined, operate as a self-acting fire extinguisher, substantially as herein described.

No. 15,688.—Robert Courtney.—*Improvement in Artificial Fuel.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim.

Claim.—The rendering coal dust or screenings into merchantable

ificial fuel, by combining coal dust with clay, lime, and coal tar, or ıer bituminous or resinous material, and subjecting them to all the rts of the process, in the manner and form set forth and described.

). 14,063.—JOHN F. MANAHAN.—*Improved Mode of Burning Wet Fuel.*—Patented January 8, 1856; antedated July 8, 1855.

The nature of this invention will be understood by reference to the ıim.

Claim.—The method of producing from wet vegetable matter a eful fuel by mixing it with coal tar or other fluid bituminous matter like character.

). 14,908.—J. JOSEPH EAGLETON.—*Improvement in Annealing Furnace.*—Patented May 20, 1856.

Within the interior wall of the annular chamber B there is a space in which an iron cylinder *e* is placed, resting on a flanch *f*, and from is flanch extends a projection *g*, which fits to the cup *m*. When the ıp *m* is brought up and shuts over the projection *g* the plate *i* will be ithin the cylinder and a double bottom be thus formed. The cup *m* supported on a pillar O, by which it is raised and lowered. The ıp *m* receives the wire to be heated and annealed. The cup *m* is en lowered, the truck is brought into place, and the wire hauled off cool, while at the same time another charge on a similar disk *i* is ought upon the cup charged with cold wire coils, and is at once raised to the furnace, which retains its full heat.

Claim.—Charging and discharging an annealing furnace in bulk by ıe means herein described.

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o. 14,008.—PHILO BROWN.—*Improvement in Furnace for Soldering.*—Patented January 1, 1856.

The pipes to be soldered are laid into the brazing chamber *i*, which open at each end, as shown in fig. 2, so that the tubes can be inserted one end and passed through as the brazing progresses. If the seam a tube is to be brazed on the outside, the soldering is put on the ;am and the tube is inserted in the brazing chamber with seam upper-ıost. The opening *l* leading to the brazing chamber is then closed ıd the one *g* opened which admits the products of combustion into the pper part of the chamber *i*, and the damper *m* is pushed to close the pertures *k k* at the top of the chamber, and the damper *o* to open the pertures *l l* at the bottom, thus conducting the heat to that part of the ıbe only which is to be soldered without overheating any other parts. ;y a similar change in the position of the valves and dampers the heat an be conducted to the lower part of the soldering chamber without eating the upper part of it.

Claim.—I wish it to be understood that I do not claim broadly the

construction or use of a furnace for brazing or soldering metallic tubes, consisting of a brazing or soldering chamber or passage interposed between the fire-chamber and chimney-flue.

What I claim as my invention and desire to secure by letters patent is, combining the brazing or soldering chamber with the fire chamber, and chimney interposed between the two, when the said brazing or soldering chamber communicates with the fire chamber by means of one or more apertures at or near the top, and one or more apertures at or near the bottom, governed by dampers or equivalents therefor, substantially as and for the purpose specified.

No. 14,153.—GEORGE R. COMSTOCK.—*Improvement in Locomotive Furnace-Grates.*—Patented January 29, 1856.

When the apparatus is not designed to be used, the lever *l* has the position shown in figure 1, and the running of the engine does not communicate motion to the apparatus. But when by the movement of lever *l* the stop *i* is placed in position as in figure 2, then the reciprocation of the side plates C C^1 is produced, causing the rising of grate B—(by means of the vertical slots *d* in the frame, and the oblique slots *e* in the side plates, through which slots the grate-rods *c* pass)—see figure 4, and causing the opening of the two cocks of pipes F and G, and the simultaneous close of the same, with the fall of the grate. The object of the pipes F and G (the one communicating with the upper, and the other with the bottom part of the boiler H) is to admit steam and moisture into the furnace at the time of opening the fuel.

The inventor says: I am aware that grate-frames, with numerous vertically moving fingers to stir and clear the fires of locomotives, have been used by Nichols & Boyes, as shown in their patents of 1850, I therefore make no claim to the device of the moving grate; neither do I claim of themselves the eccentrics or rods by which the slides are moved.

But I *claim* the simultaneous raising of the grate B and opening of pipes F and G at will for aiding the combustion of fuel in the furnace during the running of the engine, by the combination of reciprocating plates C C^1 and stop rod *i*, and parts connected therewith, or devices equivalent thereto.

No. 16,287.—JOHN H. H. PERKINS.—*Improvement in Hot-Air Furnace.*—Patented December 23, 1856.

The coils of pipe L M N are enclosed within the hot air chamber A; the cold air enters said pipes from outside through the tubes *i* and *k*; the chamber A contains a furnace D, on which is placed a reservoir of water *e* for generating steam; the steam and hot air in the chamber A warm the air in the pipes L M N, which then escapes through the pipes R S T to the rooms to be warmed.

The inventor says: I do not claim the superheating of steam, as this has been done before for other purposes.

I *claim* the mode of heating air for warming purposes, by passing it rough the hot air chamber, in close sub-chambers and pipes, the main amber being filled with air and steam, commingled and heated by e furnace or stove, substantially in the manner described.

). 15,832.—RICHARD WELLS. *provement in Furnaces.*—Patented September 30, 1856.

This invention consists in placing between the outer surface of the pporting plates C and the nuts *b* of the tie-rods D strong springs S, r the purpose of preventing the pressure against the masonry from ing relaxed by expansion of the tie-rods, and for preventing the essure due to the expansion of masonry from rupturing the support- g plates C.

Claim.—In the construction ot furnaces, the introduction of springs tween the supporting plates and the fastenings of the tie-rods, sub- antially as and for the purposes set forth.

). 15,613.—JOHN LIDDLE.—*Improvement in Air-Heating Furnaces.*—Patented August 26, 185 6

The construction of this furnace will be understood by reference to e drawings. The air rising from the sides of the main body B of the rnace, which is deflected by the lower surface of the radiator-ring E, warmer than the ring-radiator itself, and would, consequently, lose part of its caloric. In heating up this ring, if a non-conductor was t interposed, the heat thus taken up would be carried off by the par- lly cooled products of combustion; for this purpose the radiator E is ovided with small ledges H, which form a receptacle for ashes, soot, c., and thus this part of the pipe, at its lower angle, becomes a non- nductor of heat.

Claim.—The construction of the main body of the furnace, substan- lly as described, forming, by plates attached to the internal surface, series of tubes around its circumference, so as to form the smoke es without any vertical joints between the interior and exterior, and thout the employment of cores in casting, as set forth.

). 14,812.—ABRAHAM HAGER and YOUNGS ALLYN.—*Improvement in Bagasse Furnaces.*—Patented May 6, 1856.

The nature of this invention will be understood from the claim and graving.

Claim.—The application to bagasse furnaces of a skeleton arch *i i i*, hich will retard the bagasse in falling direct on such portions of the el in a state of combustion, or in any other mode substantially the me, which will produce the same effect.

No. 15,481.—SAMUEL H. GILMAN.—*Improvement in Bagasse Furnaces.*—Patented August 5, 1856.

A fire having been lighted on the hearth in front of the draft-door F, the bagasse is dropped into the dome-covered chamber A from the hopper I, and ignites on the hearth around the base of the pile; and as it burns from below, a new supply of bagasse is dropped from the hopper, and is thus dried in a pile by its own fire.

Claim.—The combination of a dome-covered cylindrical chamber A, having a circular base, with a draft-door located at E, an arch-covered second square chamber B, a pit D, a heat conduit or throat K, when constructed, proportioned, located, arranged, and combined, in the manner and for the purpose set forth and described.

Also, the location in a bagasse furnace of the draft-door or opening through which the air is admitted to support combustion, at or near the hearth level or fire-bed, and directly opposite the opening through the products of combustion, leave the first chamber of the furnace, and in the vertical plane passing through the center of the two chambers A and B, and the center of the opening where the two chambers unite, when the hearth of the second chamber is substantially on a level with the hearth which supports the bagasse to be burned.

No. 14,892.—JAMES WILSON.—*Improved Furnace for Heating Soldering Irons.*—Patented May 13, 1856

C represents a cover, which may oe suspended over the top part of the fire-pot A, to prevent radiation of heat.

Claim.—Constructing a furnace, and providing it with any desirable number of cells E E, substantially in the manner described, for the purpose of heating solder irons F with anthracite or other coal.

No. 14,298.—RUSSEL WILDMAN.—*Improvement in Furnaces for Heating Slugs for the Use of Hatters, Tailors, and Others.*—Patented February 19, 1856.

When the fire is to be kindled the plate *h* is raised, and the coal introduced to the fire-box *c*; the door *f* is then to be closed, and the plate left in an elevated position until the coal is sufficiently ignited; the slugs are then placed upon the coals, and the plate *h* closed down: thus the fire is kept at a suitable temperature for heating the slugs without danger of melting them.

Claim.—The plate *k* in combination with the fire-box and lifting arrangement, substantially in the manner and for the purpose herein described and set forth.

No. 15,009.—JACOB GREEN.—*Improvement in Gas-Consuming Furnaces.*—Patented June 3, 1856.

A represents a boiler; B the fire-place; C the mouth of chimney-stack; D a hinged valve, whose movement controls the inlet valves *b*

and *e; d* is the main pipe trom the blast apparatus. The pipe G terminates in the ash-pit, furnishing air under the grate *h*. On the lever H of valve D is placed a shifting weight K, for the purpose of balancing the weight of the valve D to the pressure of the gas escaping from the burning fuel.

The inventor says: I am aware that the mere introduction of air into furnaces by union pipes, for the purpose of furnishing a portion through the grate bars, and a part to the upper side or behind the fuel, is not new. I therefore do not claim that as the point of novelty.

I am also aware that Elkanah Ingall proposed an improvement in smoke-consuming furnaces, wherein a mere circulation of the smoke or gases from the fire space or flue with the under side of the grate bars is effected by the use of a fan or blower, situated in said circulation pipe; and that he also provided inlet valves to supply a vacuum, if occurring, as well as an exit valve in the smoke-stack for excess of pressure, all of said valves operating independent of and uncontrolled by each other. I therefore do not claim such as my improvement. But I *claim* the mode of regulating the admission of air to furnaces, so that such admission shall be controlled by the furnace itself by means of lever H and valve D, in connexion with the rod *n* and valve *b*, and the rod *o* and valve *e*.

No. 15,830.—Samuel Wetherill.—*Improvement in Furnaces for Zinc White*—Patented September 30, 1856.

This invention consists in making the bed *n* of a furnace for the manufacture of zinc white so that it can be vibrated on an axis *p*, during the working of the furnace, for the purpose of preventing slag from forming and adhering to said bed.

Claim.—Making the whole or a portion of the bed of the furnace to vibrate, for the purpose and in the manner substantially as described; but this I only claim when the bed is perforated with numerous small holes, and when used in combination with a forced blast of atmospheric air, which passes to the charge of mixed ore and fuel in numerous small forced jets, substantially as and for the purpose specified.

No. 15,018.—Samuel Richards.—*Improvement in Glass Furnaces.*—Patented June 3, 1856.

The nature of this invention consists in constructing and arranging shelves within the cone of an ordinary glass furnace for the purpose of containing the batch or raw material, in order to heat the same to a high temperature before it is introduced into the furnaces.

Claim.—1st. The preparatory deposite of the batch in the cone of an ordinary glass furnace for utilizing the waste heat.

2d. The car P Q arranged and used in combination with the shelves R S T and R^1 S^1 T^1.

3d. The moveable spout *w* for conveying the heated batch from the heating shelves into the crucibles.

No. 15,389.—SAMUEL RICHARDS.—*Improvement in Glass Furnaces.*—Patented July 22, 1856.

The batch or raw material is introduced into the shelves R S, there it remains exposed to the heat of the furnace for twenty-four hours or longer, and whenever it is desired to charge the pots P the valves at the top of the tubes h h^1 are opened and the pulverized mass is suffered to pass or flow slowly through the pipes h h^1 and falls down through the intensely heated upper part of the furnace into the pots P. In order to keep up a constant flow of the pulverized batch into the tubes h h^1 a series of agitators is introduced, one of which is represented at J.

Claim.—1st. The employment of a series of interior tubes h h^1, arranged and operating as described.

2d. The employment in connexion with said tubes of vibrating or rotating agitators, J J.

No. 14,196.—SAMUEL MACFERRAN.—*Improvement in Hot-Air Furnaces.*—Patented February 5, 1856.

The nature of this improvement is clearly set forth in the claim.

Claim.—1st. Connecting with the inner end of the bottom-plate O of the space for supplying the furnace with fuel a ring N for supporting and holding together the segmental plates of the fire-pot, so as to enable said ring to be held firmly by its connexion with the plate O, which is secured to the front part of the furnace, as herein described.

2d. Arranging the adjustable horizontal plate k, having spaces in its edges in which the heating pipes fit, above the fire-pot and capable of being raised and lowered for the double purpose of diverging the heat entirely around the said heating pipes, and in contact with the sheet iron radiating casing, and regulating the draught of the furnace and, in fact, converting it into an air-tight heater if desired, substantially as before described.

No. 16,055.—SAMUEL L. HAY and HENRY B. OSGOOD.—*Improved Method of Regulating the Draft of House Furnaces.*—Patented November 11, 1856.

The two-winged valve a is pivoted at b near the top of the supply-pipe C, and when the pressure of air which enters the pipe C in the direction of the arrow is heavier than required, it closes the valve a; the spring d retains the valve open when the pressure of air upon valve a is not stronger than required for constant use.

Claim.—The compound valve A with the spring d or its equivalent, and equipoise K, in combination with the pipe C, substantially as described, and for the purposes of a compound self-acting regulator, as set forth.

No. 16,317.—JOHN CASE and ISAAC SOULES.—*Improvement in Smoke-Consuming Furnaces.*—Patented December 23, 1856.

As soon as the fire has been kindled, and has generated gas enough to work the engine, the draft doors are closed, and the air for the support

of the combustion is forced into the furnace through pipes J. The heated gases pass from the fire box through flues E into the smoke box C, heating, in their passage, the water in the boiler; and such portion of the gas as has been saturated with oxygen, and thus cooled, becomes so heavy that it readily descends to the bottom of smoke box C and escapes at the waste pipe *h*, while the unoxydated gases are drawn by fan H into the case, and forced through the return tubes F back to the fire chamber to be again heated.

Claim.—1st. The arrangement of the fire and smoke chambers, the direct and the return flues, the gas and the air pump, the pipes to supply air above and below the grate, and the waste pipes for the spent gases, substantially as described.

2d. The combination with the smoke chamber and direct and return flues of the diaphragms, to direct the gases downward and backward as they enter the smoke chamber, and to facilitate the precipitation of the sparks and thoroughly oxydated gases from those gases which are but partially burnt, and require for the completion of their combustion to be returned to the fire chamber.

3d. The arrangement, at or near the bottom of the smoke chamber, of an open orifice for the free and constant escape of the waste gases, in combination with the smoke chamber and direct and return flues, substantially as set forth.

4th. In combination with the smoke chamber, arranging the hot gas and cold air pumps, substantially as described.

No. 14,601.—Robert B. Fellows.—*Improved Tempering Furnace.*—Patented April 8, 1856.

H is a receptacle for coal, G is the grate, and B the blast pipe. The articles to be tempered are placed within the tubes T and C, where they are heated for the hardening. They are then laid upon the sand on plate P for the purpose of drawing. The tubes T are open at both sides, one being exterior, the other within the furnace.

The inventor says: I do not claim the hardening or the plate P for drawing when accomplished or employed separately by separate fires, nor do I claim the use of the tubes or the plate before mentioned except when combined and arranged as described. But I *claim* the combination of the plate P and tubes T, or their equivalents, with a single fire, in the manner and for the purposes substantially as set forth.

No. 15,791.—William M. Wright.—*Improvement in Warm-Air Furnaces.*—Patented September 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim radiating or projecting surfaces which are cast with the fire-pot or upper section of the furnace, as used in James Miller's patent of October 16, 1838.

But I *claim*, 1st, the manner of increasing the radiating surface by

the use of the movable plates, all in the manner and for the purpose set forth.

2d. The manner of constructing the ash box, with its rim *n* to receive the fire pot, and projecting arms or supports *o o o o*, substantially in the manner and for the purpose specified.

No. 14,674.—ALEXANDER MCDONALD SPRAGUE.—*Improved Apparatus for Feeding Furnaces with Fuel.*—Patented April 15, 1856.

This apparatus is intended for feeding the fires, without admitting to the fires such quantities of cold air as materially to check combustion, and without exposing the fireman to the heat of the furnace.

The operation will be understoood from the claim and the engravings.

Claim.—The furnace feeding apparatus, composed of a cylinder C, or box of other form, sliding through an opening in the furnace front, having its inner end closed, and an opening *a* in the bottom being fitted with a door C at its outer end, and with a piston D, and a sliding shutter *b*, all arranged and operating substantially as herein described.

No. 14,233.—JOHN A. GALLAHER, jr.—*Improvement in Gas and Steam Cooking Apparatus.*—Patented February 12, 1856.

The nature of this improvement is sufficiently indicated in the claims and engravings.

Claim.—1st. The construction of a gas-cooking apparatus formed of skeleton frame plates *a a*, having ventilating slots or equivalents *b b*, and the arrangement therewith of series of longitudinal and transverse jet tubes or pipes in tiers, as in fig. 2 *m m*, together with the compound tubular valve-pipes fig. 7, and the combination of the above devices with detachable drawer-like ovens or baking apartments $g\ g\ g\ g^{1}, g^{11}$, and fig. 5, substantially as set forth.

2d. The construction of the central reservoir heater d^{1}, d^{1}, d^{2}, d^{2}, and the steam-boiler chest device *e e*, *f f f f*, *g g g*, fig. 6, as described and in application and use as set forth.

3d. The compound suspension griddle fig. 3, and the ventilating diaphragm vessels figures 4 and 5, substantially as described, and used for the purposes set forth.

4th. The air-supply bellows or pump device fig. 8, and the application and use of the same, as described, and for the purpose set forth.

No. 14,091.—CHARLES A. CUMMINGS and CORTLAND DOUGLASS.—*Improvement in Gas-Burners.*—Patented January 15, 1856.

The two jets of gas issuing from the orifices *a a* strike the plate *b* on opposite sides and are spread into a broad sheet. The plate becomes highly heated, and serves as a heat reservoir, by which the gas is heated, so as to produce a more perfect combustion.

Claim.—The interposition between two jets or streams of gas issuing from the same burner of a plate *b*, substantially as and for the purposes herein set forth.

No. 14,737.—WILLIAM F. SHAW.—*Improvement in Gas-Burners.*—Patented April 22, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The interposition of an imperfectly conducting body *c* between the tip *a* and base *b* of gas-burners, for the purpose of preventing the conduction of heat away from the point where the gas is burned.

No. 14,822.—JAMES NEAL.—*Improvement in Gas-Burners.*—Patented May 6, 1856.

The gas in its passage through the sand keeps the particles thereof in motion, and the deposited coal-tar will thus be prevented from choking the filtering medium.

The inventor says: I do not claim providing a gas-burner with a filter or strainer arranged within it, nor the application of felt cloth or other fibrous material or fabric as a strainer.

But I *claim* constructing the burner not only with a covered cup or sand reservoir C, and a discharging pipe *h* extending into said reservoir, but with one or more passages *b b i i* for the gas to flow around and into the cup C and through its loose sand or straining contents; my improvement enabling me to employ powered quartz or a loose mineral matter or substance as a filter or strainer, and thereby attain advantages as herein before stated.

No. 16,176.—JOB CORNELL and BARNETT MCDOUGALL.—*Gas-Burner.* Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Increasing the width of the slit of the burner towards the centre, and bringing it to a sharp point, or nearly so, at the extremities, in the manner substantially as represented and described.

No. 15,614.—AUGUSTUS R. MARSHALL.—*Automatic Attachment to Gas-Burners.*—Patented August 26, 1856.

The catch *n* consists of a pin secured to a small bar n^1 which stands below the disk *p*, where it is hinged at one end to a stand n^2 within the box G, and supported at the other end by a spring *r* resting on the bottom of the box in such a manner that before the gas is lighted and the disk *p* distended the catch-pin *n* is held up clear of the lever *h* and

standing immediately above the catch *j*; but that when the disk *p* becomes distended by the expansion of the air in the air chamber, it presses down the bar n^1 and causes the pin *n* to press down the catch *j* and to stop and lock the lever *h*. The catch *n* continues in operation till the gas light is extinguished, when, by the cooling of the air in the chamber I and its consequent contraction, the disk *p* is caused to rise, and thus allow the catch *n* to rise clear of the lever *h* and liberate it, thus liberating the lever H and leaving the rod *b* free to move upward, and by that means allowing the valve D to be closed by the spring *a*.

Claim.—1st. The combination with the thermostat *p* and valve D of the catch *n* on the bar n^1, and the system of levers *h* H for the locking and unlocking of the valve, in the manner and for the purposes specified.

2d. Combining with the locking-catch *n*, or its equivalent, which is acted upon by the thermostat *p*, another catch *j*, so arranged as to lock the valve open until the catch *n* is set in operation by the action of the thermostat, and then to be moved out of the way by the catch *n*, substantially as described.

No. 15,219.—Henry A. Chapin.—*Improved Machine for Reaming and Tapping Gas-Fittings.*—Patented July 1, 1856.

The fitting being clamped in the position shown in figure 1, the holder L is turned so as to bring the large rimmer *f* in line with the centre of the fitting; the shaft M is then revolved, and the rimmer is brought up to its work by the lever P. After the opening in the fitting is suitably enlarged, the holder is revolved, and the large tap *g* is brought up, by which one of the female screws in the run is formed. The fitting is then revolved 180°, so as to bring its opposite end into position to be operated upon by the same tools. The fitting is then turned, so as to bring the outlet *h* opposite to the tool-holder, and the small rimmer *i* is brought up, then the corresponding tap *m*, and the three screws are completed.

Claim.—The rotating tool-holder in combination with the revolving chuck or clamp for holding the fitting.

No. 14,325.—William F. Shaw.—*Improved Apparatus for Heating by Gas.*—Patented February 26, 1856.

The nature of this improvement will be understood from the claims and engraving.

The gas enters through the conduit pipes *e*.

Claim.—The combination and arrangement, substantially as described, of air and gas-burners or distributors, chambers A^1 and B^1, and their flue and air-supply conductors F C C, the whole being made to operate together essentially as specified. Also in combination with the gas-burner the open top and closed bottom wire-gauze tube *g*, operating as specified.

No. 14,414.—WILLIAM F. SHAW.—*Improvement in Apparatus for Heating or Cooking by Gas.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I am aware that perforated cones have been used for admitting atmospheric air to ordinary fuel for promoting combustion. This I do not claim. But I *claim* the application of a cone or dome formed of wire gauze or pierced metal to an ordinary wire-gauze gas-burner, for burning mixed gases and air, in combination with an outer cylinder of wire gauze or pierced metal, for the supply of atmospheric air, divided into jets, substantially as herein described.

No. 16,031.—WILLIAM F. SHAW.—*Apparatus for Heating and Cooking by Gas.*—Patented November 4, 1856.

This apparatus is an improvement on a similar apparatus of W. F. Shaw, patented 26th February, 1856, and the nature of this invention will be understood by reference to the claim and engravings; the object of the concentrator or guide is to facilitate the action of the perforated tube D, by bringing into contact with it a greater amount of air than would naturally strike against it, provided the concentrator were removed from it.

Claim.—Combining with the wire-gauze or perforated tube D, and the air and gas-burner A, an air-guide or concentrator G, applied thereto, substantially in the manner and for the purpose specified.

No. 14,770.—WILLIAM LYON and CHARLES W. DICKINSON.—*Improvement in the Construction of Dry Gas Meters.*—Patented April 29, 1856.

Gas is admitted through the pipe F into the small gas channel G; from thence it passes under the slide valves V W, through the openings *c c*, and alternately through the openings *i i* and *j j*, and alike alternately into the bellows, and surrounding it on the outside as the valves are operated, permitting it to pass through I^1 I^1 or J^1 J^1 to the openings above named *i i* and *j j*, which communicate with the inside and outside of the bellows of each compartment C D. The bellows being inflated expand and move the valves by means of the swing levers H, which turn the rods I I back and forward. This motion of the valves opens the apertures by which the gas within the bellows is permitted to escape into the upper chamber and pass through E^2 to the gas burner; at the same instant the slide valves open the apertures which permit the gas from the channel O to pass into the inferior chamber. The pressure thus operates in an opposite direction and causes a contraction of the bellows, carrying the levers H in an opposite direction, thus causing a revolution of the wheel P, and a continued operation of the valves.

The varying action of the springs F^1 F^1 counterbalances the unequal tension of the bellows.

Claim.—So constructing the metallic bellows for the measurement of gas, that the spring or bend of the metal may form chambers of varying dimensions and of definite capacities for receiving and measuring the gas.

2d. We claim giving motion to the registering wheel A^1 by the impinging lever 2 operated by the wheel P, and the levers and connixions communicating with the bellows.

No. 16,073.—W. G. STERLING.—*Gas Regulator.*—Patented November 11, 1856.

This apparatus consists of a drum into which a balance D is fitted loosely so as to be able to vibrate on the inner circumference of said drum. The stationary partition B reaches down into a groove of the balance D, which is filled with mercury, so as to divide the interior into two chambers. The head, fig. 2, being fitted to the drum, the apparatus operates as follows: The gas enters the pipe I through the valve G, and passes through pipe L to the burner; it also passes through aperture M into one of the chambers of the drum, and, if under a heavy pressure, depresses one side of the balance D, operates crank E, and closes valve G.

The inventor says: I am aware that two chambers connected at the bottom have been used by means of a float in one chamber attached to a valve as a regulator; and while mercury has been found too heavy, other fluids, by their evaporation, constantly derange the operation of the machine; but by means of the vibrating balance in both chambers, my apparatus is extremely sensitive to the slightest pressure, and not subject to this difficulty.

I *claim* the vibrating balance D, with the partition B, forming two chambers and extending into said balance D, which is so adjusted that it vibrates in the two chambers, and is connected with a valve in any suitable form, as described, or any other mode equivalent thereto.

No. 14,893.—HENRY WATERMAN.—*Improvement in Gas Regulators.*—Patented May 13, 1856.

The inventor says: The parts *g g i* and *k*, which form what I call the valve, I make in such a manner, as to proportions of weight, that the point of connexion with the link *h* shall be, as near as possible, the centre of gravity of the valve, so that when the level of the apparatus is disturbed by change of position of the metre to which it is usually attached, it will not require increased force from the floatings *d* and consequent increased pressure in the branch to raise the valve against the seat.

Claim.—The construction of the valve *g g* of the gas regulator in the annular or ring form, with two faces or leats of different diameter, one at the outer and one at the inner periphery or edge, so as to produce greater circumferential capacity or opening for discharge of gas, with a limited area of valve relatively.

No. 15,028.—MARSHALL WHEELER.—*Improvement in Gas Regulators.*—Patented June 3, 1856.

The line *x x* indicates the water-level in the gas regulator. If there is a great pressure of gas in the street main, the gasometer E of the regulator will rise, and thereby diminish the exposed portion of the aperture *m* in the end of the goose-neck *d*, at which the gas enters, and so on. The quantity of gas that can enter will therefore depend upon the position of weight *j*. The force of the gas in the street main will exert no effect upon the gas regulator unless it should fall below that at which the regulator is gauged for, and in that case the gasometer will sink and allow the gas to flow at its reduced force through the regulator to the burners.

Claim.—The combination of the gasometer E and its goose-neck *d*, with the fluid receptacle and with the graduated lever *i*, and the weighing poise *j*.

No 14,437.—JAMES B. BLAKE.—*Improved Apparatus for Roasting and Broiling by Gas.*—Patented March 18, 1856.

In the sockets B B (which are connected with the main pipe A) revolve the vertical pipes C, with their branch-pipes D, provided with the burners *c*. When used as a roaster, the branch-pipes are set in the position as seen in figs. 1 and 2. The dotted lines indicate the position when used for the purpose of broiling.

Claim.—The within described roaster and broiler, constructed and operating in the manner substantially as herein set forth.

No. 14,142.—JOHN T. OSBORN.—*Improvement in Grate Bars.*—Patented January 22, 1856.

The object of this improvement is to let the cold air enter to the opening *b* in the boiler wall K, and circulate through the hollow spaces *a*, formed by the concave sides *c c* of the bars.

The inventor says: I *claim* increasing the height of ordinary grate bars of furnaces, by an addition to their top of a piece having its sides concave, and without any jogs in its entire length, substantially as described and for the purposes set forth; and I distinctly disclaim all other features of the grate bar described, except what I have specifically claimed.

No. 14,642 —JOHN SAWYER, assignor to Himself and THOMAS HALE.—*Improved Apparatus for Heating and Ventilating Buildings.*—Patented April 8, 1856.

In the application of this apparatus to a building, the air-heating chamber A is to be placed in the lowest story, while the ventilating chamber G extends into each of the other stories. Separate stories are ventilated by means of pipes I K. Should it be desirable to heat any

of the rooms by means of separate stoves, they may be made to communicate with the main smoke-flue B by lateral pipes L M.

The inventor says: I am aware that a smoke-pipe has been enclosed in a casing so as to leave a space around the said pipe for the reception and heating of external air and carrying the same into one or more apartments of a building. Therefore, I do not claim such; but having made a peculiar combination and arrangement of the smoke-pipe, air-heating chamber, hot air flue, and ventilating chamber, my invention rests there, and consequently, what I *claim* is—

The arrangement of the ventilating chamber G with the main hot air flue F, the smoke flue B, and air-heating chamber A, the ventilating chamber and hot air flue having valves *c c*, *d d*, and *e e*, applied to them; the whole being capable of being used in heating and ventilating the apartments or stories of a building.

No. 14,743.—GEORGE S. G. SPENCE.—*Improved Pressure-regulating Apparatus for Steam-heating Boilers.*—Patented April 22, 1856.

The inventor says: I am aware that it is not new to apply to the boiler and the cylinder or valve-chest of a steam engine a refrigerating apparatus or condenser, for the purpose of condensing the waste steam, the water of its condensation being subsequently returned to the boiler. I am also aware that a safety-valve is no new contrivance as applied to a steam-boiler. Therefore I do not claim such, separately considered. My invention has reference particularly to an apparatus for heating buildings by the condensation of steam through pipes, radiating vessels, or chamber, so connected with a boiler or steam generator, that the steam, after having imparted heat to and been condensed in said radiators, shall be returned to the boiler in the form of water. To such an apparatus or to its boiler I apply my improvement; and it should be borne in mind that the water condensed in the radiators *does not return through my apparatus* to the boiler. It is only the steam which may be condensed in the receiving chamber F of the safety apparatus that returns to the boiler through the stand pipe H. While the stand pipe H and the chamber or vessel F, in connexion with the safety-valve, serve to regulate the pressure, the chamber F, its cover M, and the refrigerating cistern G perform, besides other important functions, that of receiving any amount of steam which may be suddenly blown through the pipe I, and condensing it so that it may be returned into the boiler by means of the pipe H. Thus while we insure safety to the boiler and heating apparatus and regulate the pressure of the steam, we prevent the steam from being wasted and condense and return it to the boiler.

What, therefore, *I claim* is, the above described peculiar arrangement of the steam generator or boiler B, the stand-pipe H, the condensing apparatus (composed of the receiver F, the cover M, and the refrigerating vessel G), the safety-valve, and its pipe I.

o. 14,158.—STEPHEN J. GOLD.—*Improvement in Apparatus for Heating Buildings by Steam.*—Patented January 29, 1856.

When from the temperature of the external air the condensation in ıe radiators is slow, or but a portion of the radiators is brought into ction, there will be an increased pressure of steam on the surface of ıe water in the boiler, causing it to rise through pipe C into box D. 'his rise of water in the box gradually diminishes the draught-passage ntil, by the continued rise, the mouth of chamber E is reached and the ydraulic seal is established, entirely shutting off the draught, which is epresented by the arrows; this, of course, deadens the fire. But hould the pressure still continue, the water will pass into chamber E nd lift float *f*, thereby raising the conical valve *a* and permitting the ntrance of cold air into the boiler flue. Cold air let in at this opening akes the place of the heated air there existing when the flue is closed, nd causes the steam instantly to condense. This removes the pres- ure and permits the water to return to the boiler, letting down 'alve *a* and gradually removing the hydraulic seal, when the draught ı reinstated.

Claim.—The automatic governing of the draught and the shutting off f the same, by the forcing of water from the boiler by pressure of team, under the circumstances and substantially as specified; or, in ther words, establishing the hydraulic seal.

Also, the automatic government of the valve *a* by the forcing of vater from the boiler by the pressure of steam, under the circumstances nd substantially as set forth.

The governing of draught-valves by expansion of water being ex- ıressly disclaimed, as constituting no part of the invention.

Jo. 14,392.—CHARLES DAVENPORT.—*Improved Apparatus for Heating Buildings by Steam.*—Patented March 11, 1856.

The cock *h* being opened and water being admitted into the supply istern P until it reaches the required level within the boiler, and the ire being kindled, the steam rises through the pipe U into the heater [', there being one or more of these heaters in each of the apartments o be heated. The chains M and L are then adjusted to each other, ıccording to the temperature of the weather and the pressure required. f the steam be shut off from one or more of the heaters, the pressure vithin the boiler will be increased, and the float I will rise and close he dampers *e* and *l*, checking the fire until the pressure is reduced to he point at which the chains M L are adjusted. Should the cold ıecome severer, the chain M is hooked lower down upon the chain L, ınd the float will then rise higher before the dampers are affected.

Claim.—So connecting the float with the dampers of both the draught ınd smoke flues by means of the chains M and L. or their equivalents, hat the pressure of the steam within the boiler may be graduated to he temperature of the atmosphere and the degree of heat required vithin the building, as set forth.

2d. So connecting the float which actuates the dampers of the draught

The inventor says: I do not claim a conical glass chimney or a conical end to a glass chimney, as these are well known and in general use; neither do I claim a metalic cone; but I am not aware of any separate glass cone ever having before been made use of, similar to that set forth herein.

I *claim*, 1st. Deflecting a portion of any passing draught or current of air up the exterior air tube, by means of the wings *f f*, or their equivalents, to counteract the suction or partial vacuum produced at the other portions of the lamp by said passing draught, or current of air, as specified.

2d. I claim the wings *f f*, or their equivalents, applied around the wick tube 3 to cause any sudden draught or current of air to be deflected with equal force up into the cone 2 and external draught, and down into the drip cup *e* and internal draught, in the manner and for the purposes specified.

3d. I claim the separate transparent cone *e* within the chimney *d*, rising only to about the height of the button 7, for the purposes and as specified.

4th. I claim the sleeve or cup 8, combined with the perforated wick tube, and enclosing said perforations in the manner and for the purposes specified.

No. 14,248.—CHRISTOPHER MOELLER.—*Improvement in Wick-Holders for Argand Lamps.*—Patented February 12, 1856.

The wick *w* is put upon wick-holder *a* with great facility, by compressing its fingers, inserting them within the end of the wick, and then suffering the fingers to expand by their elasticity. The wick is thus held securely, and the friction of the wick and fingers upon the tubes *f* and *g* is such that the rack cannot fall by any sudden jarring of the lamp, and draw the wick down with it.

The inventor says: I do not claim a spring clasp for embracing the wicks of lamps; but I *claim* the peculiar mode herein above set forth of holding the wick and pressing it outwardly against the wick tube, in the manner and for the purposes herein set forth.

No. 14,492.—ABRAHAM COATES.—*Improvement in Regulating the Flow of Oil to the Wick in Carcel Lamps.*—Patented March 25, 1856.

If the oil should flow too fast it will fill the drip cup *k* faster than it can escape through *m*, and the increased weight will cause the lever *k* to descend and diminish the valve opening in the space *e* of the syphon tube *d*. The cup will then empty itself to the proper level, return to its proper position, and thus regulate the flow of oil.

Claim.—What I claim as my invention in lamps in which the oil is forced to the wick so as to overflow is, regulating the supply of oil in the burner by means of the self-emptying drip cup operating upon the supply valve, as herein set forth.

No. 15,724.—SALMON BIDWELL.—*Improvement in Lamps for Burning Fluids.*—Patented September 9, 1856.

The wick is inserted into the conical space between the outer cylinder B and the inner cylinder E, and can be compressed between this cylinder by means of the screw *a* operated upon from the thumb plate H. The object of this arrangement is explained in the accompanying claim.

Claim.—The mode of compressing the wick in the manner described, so as to prevent any change in the light caused by the jar of the lamp, and to prevent the escape of the burning fluid faster than is desired, and to secure the gas generated from the same, and to enable the use of any desirable fluid for lamp purposes.

No. 14,369.—PRENTICE SARGENT.—*Improvement in Lamps for Burning Rosin Oil.*—Patented March 4, 1856.

The nature of this improvement will be understood from the claims and engravings.

D represents the outer wick tube, E the wick.

Claim.—The annular air reservoir P, in combination with the entry space T and inwardly projecting lips *o p*, substantially as described, for the purpose of rendering the outer draught sufficiently constant to prevent the smoking of the lamp by any gusts of air or sudden movement to which the lamp may ordinarily be subjected.

Also, the fine apertures or meshes *n n*, opening into an outer chamber S, in combination with said chamber, and with an inner perforated or reticular partition *r* separating said chamber from the inner draught tube G, substantially in the manner and for the purposes herein specified.

No. 15,686.—WILLIAM B. CARPENTER.—*Extinguisher for Fluid Lamps.*—Patented September 9, 1856.

The extinguishers A are attached to springs D, which latter are attached to a ring on the burner B; the ring and extinguisher may be made to slide up or down on the burner D as represented in the illustration. This arrangement dispenses with the chain used heretofore to connect the extinguisher to the lamp.

Claim.—The divided cap or extinguisher A A, in combination with the springs D D and the ring *c*, the whole operating substantially as described.

No. 15,198—NICOLAUS LINDEN.—*Improvement in Fountain Lam.* Patented June 24, 1856.

The reservoir is filled by turning the inner cylinder E, by means of handle G, till the openings *b* and *f* coincide. The cylinder is then filled through the openings *f* and *b*, the valve *c* being open in consequence of the upper projection *e* bearing downwards the springs *d*

The cylinder is then turned again till *b* is over the orifice of the tube F, the valve at this point being opened by the lower projection *e*, and the oil passes down into the wick-tube.

Claim.—Constructing the reservoir C of two cylinders D E, one placed within the other, the inner cylinder E being provided with a valve *c* attached to spring *d d;* said valve being opened at the proper points by the projections *e e* on the inner side of the cylinder D.

No. 14,994.—SOLOMON ANDREWS.—*Improvement in Gas-Burning Lamps.* Patented June 3, 1856.

The nature of this invention consists in surrounding the wick-tube *b* with an outer cylinder *a*, thereby avoiding partly the danger of explosion by preventing the fluid from coming in contact with the heated portion of the lamp.

Claim.—The wick-tubes surrounded by an outer tube or cylinder, in the manner and for the purpose specified.

No. 14,727.—ALONZO M. MACE.—*Improvement in Hydro-Carbon Vapor Lamps.*—Patented April 22, 1856.

The nature of this invention will be understood from the claims and the engraving.

The inventor says: I am aware that it is not new to provide a wick-tube with a retort, and to heat such by a separate burner or a separate wick-tube; and I am aware that it is not new to provide the wick-tube with a bulb or retort to extend the wick into it so as to fill it, and to have jets or holes made in the tube or bottom of the retort or bulb so that the flame thereof would only impinge against the bottom of the retort, the same being described in a patent granted August 27, 1850, to Clayton and Baily.

I do not claim any of such devices.

But I *claim* the particular arrangement of the bottom of the retort F and the jet holes *e e* with respect to the wick-tube B, whereby the inflamed jets of vapor issuing from the jet holes *e e* are driven downward against the wick-tube, and their currents of heat made to ascend against the concave bottom of the retort, the same serving to greatly facilitate the generation of vapor as well as the heating of the same.

I also claim combining with the retort the bell-shaped cap or heat-retainer G, made of transparent or other proper material, the same being arranged substantially in manner and for the purposes as shown.

No. 15,829.—THOMAS VARNEY.—*Improvement in Hydro-Carbon Vapor Lamps.*—Patented September 30, 1856.

The liquor to be vaporized is contained in the vaporizer C; the air is forced with a gentle pressure into the vaporizer through the pipe D, and, circulating through the passage *h*, takes up the vapor from

the liquid, and passes up the pipe *g* to the burner. The liquid is supplied from the reservoir B to the vaporizer C just as fast as it vaporizes and is consumed, by the escape of air up the tube *c*, as the level of the body of liquid at the bottom of the vaporizer falls below the tube *c*, and therefore the quantity of liquid in the vaporizer remains the same.

The inventor says: I do not confine myself particularly to the convolute arrangement of the passage *h h* in the vaporizer, as there are other forms in which a passage or passages may be arranged to cause the air to take a circuitous route through the liquid.

But I *claim* the combination of the reservoir B, by means of a seal-pipe C, with the stationary vaporizer C, containing a circuitous passage, under any arrangement, substantially as described.

No. 14,806.—SAMUEL DAVIS.—*Improvement in Lard Lamps.*—Patented May 6, 1856.

The aperture F admits air to pass up through the stem E and tube D, whereby the light is caused to burn with increased flame and brilliancy. The light can be extinguished by pressing the thumb against the aperture F. The slots B are for the purpose of allowing the wick to be raised or lowered by a pin or wire.

The inventor says: I do not claim a tube or a feeder with apertures.

But I *claim* a tube with a cone-shaped feeder A A, lard heater in two segments, (to admit of a double wick,) with its apertures, and the aperture F in the stem E, all in combination.

No. 15,364.—JEREMIAH S. SENSENY, assignor to Himself and GEO. H. MERKLEIN.—*Improvement in Lard Lamps.*—Patented July 15, 1856.

The lard is heated to a liquid state and poured into the reservoir C, whence, by turning the spigot *k*, it can be let into the burner *h*. After the lamp is once filled, it can be refilled at any time without liquifying the lard, which is the principal feature of this invention.

The inventor says: I *claim* the arrangement and construction of a lamp, as herein described and for the purposes set forth.

No. 15,172.—SAMUEL E. CLEVELAND and HENRY B. CLEVELAND.—*Improvement in Locomotive Lamps.*—Patented June 24, 1856.

When the can is to be filled with oil, the plunger B is near the bottom of the can, the oil being above. When the plunger B is raised, a portion of the oil passes through the valve A and below the plunger, and then the power and pressure of the spring D is exerted upon the plunger, whereby the oil is forced up on the outside of the tapering tube C until it flows over into the tube, and down into the feeding tube R. To compensate for the less power exerted by the spring, the tube C is made tapering, so that there is greater room or space for the

oil to pass through the mouth of the tube X when the pressure of the spring is least, the smaller end of the tube being connected to the plunger.

Claim.—The arrangement and combination of the valve A with the plunger B and spring D D, for the purpose of forcing the oil from the can or reservoir to the burner or wick.

No. 14,912.—JOHN STUBER, assignor to JOHN CARTON.—*Improvement in Locomotive and Railroad Lamps.*—Patented May 20, 1856.

To regulate the flow of oil through the tube *u* the screw rod *z* is introduced, which, by reason of the thread A, furnishes a spiral passage for the oil.

The usual circular passage around the burner cylinders for the ascent of the air is closed up near its bottom, leaving holes to admit the lower ends of the short tubes 5, 6, 7. The structure A^1 is dropped in around the burner cylinder before the cap is put upon the cylinder, in such a manner as to insert the lower end of the short tubes in these holes. This forces the air in ascending around the outside of the burner to rise through the tubes 5, 6, 7, and issue around the flame of the lamp through the apertures c^1 d^1 e^1 in the circular hollow ring B^1. The tube D is also introduced for the purpose of furnishing a more abundant supply of air to the flame, in the manner as shown.

The inventor says: I do not herein claim as new, generally, the forcing of the oil from the oil chamber into the burner by means of the spiral spring and valve, nor the operating of the valve by means of the ratchet bar and key; as these devices have heretofore been used.

But I *claim* the tubed structure A^1 (figure 2) as combined with the burner to regulate the flow of air to the exterior of the flame of the lamp.

I also claim the arrangement of the feeding cup *t* and the tube *s* provided with the regulating spirally grooved fillet A.

No. 15,305.—FREDERICK J. SEYMOUR.—*Improvement in Locomotive Reflector Lamps.*—Patented July 8, 1856.

The nature of this invention can be understood by reference to the claims and illustration. The air is admitted near the front edge at *m* and the chimney *l* is placed to the rear of the vertical line above the burner, so that the rush of air through the reflector, passing in nearly a straight line from one opening to the other, as indicated by the arrows, will take the top of the flame and carry it backwards and up the chimney *l*, preventing smoke from being deposited in the reflector.

The inventor says: I do not claim regulating the amount of fluid or burning material supplied to a wick and burner by means of a cock, as this has been done, but I am not aware that the wick itself has ever before been passed through the cock, and the flow of burning material, regulated by the compression thereof on the wick, whereby the cock

can be placed near the burner and the wick be allowed to extend below said cock to any desired point under circumstances that would prevent the use of a cock to regulate the supply to the wick; and this arrangement becomes indispensable with my reflector lantern, because it is required that the oil from the reservoir may be burned up, and also that the wick be prevented from overflowing in filling said reservoir.

I *claim* constructing the reservoir of locomotive lamps so that the reflector becomes one side of said reservoir, for the purpose of heating the contents thereof and rendering the same liquid and limpid.

I also claim constructing the reservoir of locomotive lanterns by means of a case surrounding the whole reflector and provided with the air-tight screws *i k*, so as to cause said reservoir to become a self-supplying fountain to the burner tube *f*.

I also claim regulating the supply of oil or other burning material to the flame of a lamp, or shutting off said supply by means of compression on the wick by the cock *g*.

I also claim placing the chimney *l* to the rear of the vertical line over the flame, when the draft is supplied at or near the front of the reflector.

No. 16,180.—HORACE L. HERVEY.—*Improvement in Pocket-Lamps.*—Patented December 9, 1856.

By pressing inward the catch G the revolving match holder C is set free and caused to revolve a portion of the way around by the action of spring Q upon it; and in this manner it brings one of the matches J in contact with the sand-paper I, which thus ignites the match, and as the latter passes over wick *k* it ignites the same.

Claim.—The combination of the revolving match-holder with the pawls E, spring F, catch G, and extinguisher L, for the purposes of a portable pocket-lamp, as set forth.

No. 15,547.—SAMUEL WHITMARSH, assignor to WILLIAM J. DEMOREST.—*Improved Vapor-burning Lamps.*—Patented August 12, 1856.

The reservoir A being filled, and the cock C opened, the alcohol passes through pipe B to the space E of the burner D, and is dispensed through the annular space E by the gravel filling. A small amount of alcohol, being poured upon the wire gauze F and lighted, heats the gauze sufficiently to vaporize the alcohol contained in the space E. The flame created by the combustion of the vapor is intensified by the oxygen of the atmospheric air, which is admitted through the air holes G. The flame rising against the outside of cylinder H heats the latter, and causes the air inside of it to expand and rise through the tube I, and against the cover J, whence it is deflected towards the inside of the cylinder H, where it escapes through a series of holes in said cylinder, and supplies the flame with a further portion of oxygen to yet increase its intensity.

The inventor says: I do not claim the principle of increasing the intensity of combustion or flame by an admixture of atmospheric air, as that has long been known and used.

But I *claim* the method of heating the air supplied through the air-holes in the outer cylinder R, in the space between the cylinders H and I.

No. 14,201.—FRANCIS MORANDI.—*Improvement in Lanterns.*—Patented February 5, 1856.

This lantern is used for lighting street gas-lamps without opening the lantern. The funnel D being held over the gas-burner E, as represented in the engraving, and the cock being turned, a portion of the gas is drawn towards the flame in the lantern and is at once ignited.

Claim.—The funnel D applied to the lantern, in the manner and for the purpose substantially as herein set forth.

No. 15,782.—SINCLAIR SHANNON.—*Improvement in Lanterns.*—Patented September 23, 1856.

The nature of this invention consists in attaching the bail B to the lamp-pot C, said bail passing through loops *a* of the lantern, thus preventing the lamp-pot from becoming detached from the lantern, when the latter is carried about.

Claim.—Connecting the lamp-pot to the main body of the lantern, by the bail, substantially as set forth.

No. 14,087.—HEZEKIAH CROUT.—*Improvement in removable Flange Bars for securing the Glasses of Lanterns.*—Patented January 15, 1856.

The bar L is removable, so as to allow the glass K to be taken out or to be inserted. The glass having been inserted, the wire M at the upper end of the bar is slipped into a hole in the flange F of the frame of the lantern. Then the bar is pressed against the corner of the lantern and glass, and slipped down so as to insert the lower wire N into a hole in a little flange at the bottom of the lantern. T is a wire-handle which serves in removing the bar. The engraving represents only the lower half of the lantern.

Claim.—The application of the flanged removable bar for the purpose specified.

No. 14,741.—EMILE SIRRET & WILLIAM H. SCOTT.—*Improvement in the Method of Fastening Lamps to Lanterns.*—Patented April 22, 1856.

The nature of this invention consists in fastening a lamp B, by means of its base A, to the lamp casing E in such a manner that it shall not be liable to fall out of said casing by any sudden jerks, and this is effected by means of revolving the lamp, fastened to an axis on top of the base of the lantern, in such manner that the extending rim A of the lamp slides over two shoulders F F inside, near the bottom of the lamp-casing.

Claim.—Constructing the lamp with the bottom extending so as to form an annular flange, which may be revolved with the lamp independently of the base of the lantern for the purpose of attaching the lamp to the lantern.

No. 14,608.—CHARLES M. GOULD and CHARLES B. LAMB.—*Improvement in Submarine Lanterns.*—Patented April 8, 1856.

The annular space T between the cylinders B B serves as a reservoir of air, to prevent by its non-conducting properties the condensation of the air passing through the lamp.

The air is forced down through the feed tube F^1 into the chamber J, wherefrom it passes into the house B through the perforations H H and sub-chamber Y, then passing off through the space between the arched shield *x* and sides of chamber A into the escape pipe F, and carrying out the gasses evolved by the combustion of the flame. The spring valves serve to equalize the air currents in their passage through the chamber, and the shield *x* to prevent the flame from being tapered out by the draught.

Claim.—1st. The two concentrically arranged glass cylinders having an air space between them.

2d. The air-chamber, J and Y with the communicating perforations H H and spring valves J J, in combination with the feed and escape pipes F F, constructed substantially in the manner and for the purpose herein described.

No. 14,229.—LEVI S. ENOS.—*Improvement in Oil Cans.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The compact arrangement with each other of the air tube *a*, the discharging tube *e*, the thumb piece *f*, the spring *g*, the valve rod *b*, and the removable cover of the can, which enables the said operating parts to be easily withdrawn from the can for examination and repairs, and as easily replaced again for service, substantially as herein set forth.

No. 14,825.—JESSE OHMERT.—*Improvement in Ovens.*—Patented May 6, 1856.

When the dampers *i* are closed, the heat, smoke, &c., from the fire chamber C of the furnace A will pass through the apertures *b b* and the flues *a a*, thence upwards through the apertures *g g* into the flues *e e* of the upper compartment of the furnace; the heat passing through the aperture *f* into the chamber D, and heating the bottom of the oven, and then passing upward through the apertures *k k* into the space *l* around the oven; the smoke escaping into the pipe F. The heat is

thus made to pass entirely around the oven, with the exception of its front end.

Claim.—The arrangement of the flues *a a*, *e e*, and space *l*, relatively, with the fire chamber C, and oven F, as herein described for the purpose specified.

No. 15,753.—HOSEA BALL.—*Improvement in Ovens.*—Patented September 23, 1856.

The hot air enters the oven from the fire-place A through the flues *d* and apertures *a* and e^1, and the bread to be baked is placed upon the swinging platforms *h*, suspended on reel *f*, which can be turned on shaft D. When the bread is baked the platforms *h*, by turning the reel, will come in contact with the guides *h*, and the bread is discharged into the chute *g*.

Claim.—The perforated interior chamber, in combination with the rotary reel and the swinging platforms thereon, self-discharging, substantially as set forth.

No. 16,143.—JOHN P. HAYES.—*Improvement in Ovens.*—Patented December 2, 1856.

The vertical partition plate *f*, which heretofore produced the dumb flue, is set behind the oven, with an oblong opening *g* through it, on the side next to the oven, of such a capacity as will cause the direct draught C from the fire-range to be divided into two currents, one passing beneath the oven and up on the side C^1, the other alongside B and through *g*, where it joins current C^1, and then passes up between ovens A and A^1 to escape-flue D.

Claim.—1st. Making an oblong opening *g* through the plate *f*, which is fixed to the back of each of the ovens, substantially and for the purpose set forth and described.

2d. The arrangement of the soo-tcatching trough *h* at the back part of each of the said ovens, substantially as and for the purpose set forth.

No. 15,422.—JOHN P. HAYES.—*Improvement in Bake-Ovens.*—Patented July 29, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Heating the flues B B, arranged so as to cause the products of combustion to pass from the fire chamber A, first into the lower flue B at 1, thence behind its partition *f*, and out at 1^1; thence into the next flue B, above at 2, and out at 2^1, and so on, as shown by the arrows through the successive flues which may be above to the escape flue C; the said flues being arranged on the two sides of the casing, as described, and divided by the partition *e*, and the products of combustion being directed thereby, together with the partition plates *f* and *g* in the wall, substantially as described.

No. 14,895.—JACOB S. WILLIAMS.—*Improvement in Ovens of Cooking Ranges.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The employment of removable ovens B C provided with unconnected compartments *c c*, of various sizes and forms, and arranged so that said ovens may be substituted one for another, or be inserted in different positions, for the purpose of subjecting their compartments to different intensities of heat, according to the nature of the viands to be cooked therein.

No. 14,200.—GEORGE R. MOORE.—*Improvement in Fire-Pokers.*—Patented February 5, 1856.

The object of this improvement to make it practicable to poke coal-fires without the escape of ashes and dust into the room. Figures, 1 and 2 represent the poker in its backward and forward position in the ashbat, beneath the grate, which is indicated by dotted lines; figure 3 represents the upward and downward motion of the poker. The leverage of the handle A can be increased by drawing it out, as represented in figure 2. For this purpose it is made to slide in the tube B.

Claim.—The arrangements, or any of their equivalents, by which the several motions of the poker are obtained. Also the arrangement, or its equivalent, for contracting the handle of the poker at pleasure.

No. 14,591.—JOHN PLANT and CHARLES G. BALL.—*Improvement in Cooking-Ranges.*—Patented April 8, 1856.

While the whole heat from the fire-chamber on the right or left of the range passes by its diving-flue F, only the one half of the heat from the adjoining fire-chamber No 2 passes by the diving-flue on the right side of the bridge, while the other portion of the heat from No. 2 passes to the next oven by its diving-flue F, and so in succession to each oven, all receiving a portion of heat from two fires.

The inventors say: We do not claim the alternate arrangement of a series of furnaces and ovens.

But we *claim* the arrangement of the fire-chambers A, ovens B, and front plate *d*, in such relation to each other as to admit the products of combustion to pass through the flue X over the top plate of the oven, and thence down through the flue F in front of the fire-chamber to the flue G beneath the oven, substantially in the manner described for the purposes specified.

No. 15,093.—E. A. TUTTLE.—*Improvement in Registers and Ventilators.*—Patented June 10, 1856.

On the valves B B is suspended the vibrating scroll front plate F F, having its axis directly over the contiguous axes of the valves. Pins

s s, projecting from the back side of F, operate upon the projections P P raised upon the valves, as shown. By turning the vibratory front, the projections *s s* and P P, which are constantly in contact, operate upon each other, and throw open the valves.

Claim.—The combination of the vibrating or revolving scroll front plate F F and the wing valves B B, operating in contact by means of cast or fast projections upon each at the points of connexion, without the use of any intervening parts or pieces, and substantially as described.

No. 14,754.—SAMUEL HUFFMAN, assignor to Himself and JAMES D. BROWNE.—*Combined Shovel and Tongs.*—Patented April 22, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The flange *b* and the plate *a* when combined with a pair of tongs, for the purpose of forming an instrument capable of being used either as a shovel or tongs.

No. 14,505.—CHARLES JONES.—*Improvement in Ash-Sifters.*—Patented March 25, 1856.

The object of this arrangement is to cause the sifter to vibrate with a compound motion.

Claim.—The use of the sieve H, in combination with the double-acting cranks G and rods J for suspending the sieve, for the purposes and in the manner of arrangement of parts in any suitable ash-box A, substantially as herein set forth.

No. 14,609.—SAMUEL HARRIS.—*Improvement in Machines for Sifting Coal and other articles.*—Patented April 8, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The providing of the pins *a a a*, on the underside of the cover A of the sifting-box B, in such relation to the bottom of the vibrating sieve C, that when the top of the box is closed and the sieve vibrated back and forth, they shall separate the material being sifted, and thus improve and facilitate the sifting operation; and when the top of the box is opened, they shall be out of the way and thus allow for the convenient removal and replacement of the sieve.

No. 14,567.—STIMMEL LUTZ.—*Improvement in Spark Arresters.*—Patented April 1, 1856.

The smoke together with the sparks ascending the smoke-pipe A strike and heat the plate D, and are deflected through the branch pipes

B B, from which they pas into the reservoir C; the sparks are here, by means of cavity G, in a great measure precipitated upon plate D and consumed. The remaining cinders pass with the smoke into the annular space E, where they are extinguished by the vapor of condensed steam issuing from the exhaust pipes N N. The conical space P receives the moistened ashes and cinders, while the smoke proceeds upwards. Any cinders which may be carried up are arrested by the partition M.

The inventor says: I do not claim simply a cap or deflector for arresting the sparks while the smoke proceeds onward, nor do I claim partitions or caps of wire gauze, or perforated sheets of metal alone.

But I *claim* the combination of the plate D, branch-pipes B B, and the cap or reservoir C, provided with a central cavity G, or its equivalent, in its upper end, arranged in the manner and for the purposes set forth.

No. 14,398.—PETER C. GUIOU.—*Improvement in Spark Conductors for Locomotive Trains.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not confine myself to any exact form or dimensions; I do not claim the smoke pipe, or funnel, or frame, or the yoke, or the springs, either of them by themselves.

But I do *claim* the yoke Y with the springs S S and the frame F, as arranged, so that the pipe shall have free space and liberty to play, by the yielding of the spring to accommodate the rocking motion of the cars, or the up and down motion without cramping or injuring the pipe, and also to give room for the back and forward motion allowed by the car coupling, for the purpose and in the manner as above set forth.

No. 14,318.—JAMES T. KING.—*Improvement in Domestic Steam Generators.*—Patented February 26, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—The combination of a water tank C, steam chamber D, and steam generator B, connected together in the manner and for the purpose specified, so that the height of water in the water tank above the orifice of the pipe leading to the steam chamber shall always regulate the pressure of the steam, while there will be a free escape of steam as soon as the water in the water tank falls below said orifice.

No. 14,312.—STEPHEN J. GOLD.—*Improved Air Cock for Steam Heating Apparatus.*—Patented February 26, 1856.

The channel *b* being open for the passage of air from the radiator, (see letters patent obtained by the inventor in 1854 and 1856,) the radiator will fill with steam and the air escape from perforation *e*.

Claim.—A fire-pot or furnace, provided with a series of enlargements or projections on its side or sides, commencing at and extending upwards from the grate, to contain the fuel while it is being burned, or during its consumption, substantially as described, open or provided with openings at the top for the escape of the gaseous products of combustion.

Also a grate made around a solid centre or disk, substantially as described, for the purposes set forth.

Also a supplying cylinder in combination with the above described fire-pot or furnace and grate, or either of them.

No. 14,467.—MERRITT PECKHAM.—*Improvement in Sectional Fire-Pots for Stoves and Furnaces.*—Patented March 18, 1856.

The sections A are fitted together at their inner parts *b* by means of the projections *d*, which fit into the recesses *c*. An iron ring B is fitted into the annular groove formed by the recesses *e* in the upper edges of the sections A. The projection *f* of the base C fits into similar recesses at the lower end of the sections.

The inventor says: I do not claim forming a fire-pot of sections or parts, irrespective of the construction and arrangement as herein shown.

But I *claim* forming the fire-pots of stoves, furnaces, &c., of sections A, when said sections are constructed and secured together, substantially as herein shown and described.

No. 14,648.—WILLIAM W. BINNY.—*Improvement in Coal Stoves.*—Patented April 15, 1856.

By closing the register B, and opening the damper H and the draught-door F^1 of the ash-drawer, a direct draught is obtained, as indicated by the dotted arrows. By closing the damper H, the draught will take the course indicated by the arrows. By closing the draught-door F^1 in the ash-drawer F, and opening the register B, the combustion will be slow, as the fire will be supplied with air at its upper surface only.

Claim.—The partition G placed within the cylinder C and provided with a damper H; the vertical tube or pipe K, also within the cylinder C; and the hollow base A, provided with a register B; when the above parts are arranged as herein shown and described for the purposes specified.

No. 14,278.—ABNER BURNHARN.—*Improvement in Cooking Stoves.*—Patented February 19, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim the placing of an air-chamber or air-flues around the fire-chamber, or over the upper fire-flues of stoves, nor the carrying of an air-passage or radiator through the

smoke-pipe or chimney, as separate and distinct parts of the apparatus, as each of them may be found in some existing stoves.

I *claim* the combination of an air-chamber G, surrounding the fire-chamber F, having inlets *d* and *f* for the admission of air from without, with an air-flue lying between the top C of the fire-chamber with its flue and the top plate B of the stove, together with an outlet from the same by a pipe or radiator placed within the smoke-pipe or flues, substantially as set forth in the above specifications.

No. 15,023.—WILLIAM B. TREADWELL.—*Improvement in Cooking Stoves.*—Patented June 3, 1856.

The under side of the flues *l l* forms part of the oven-top, so that when the damper *e* is closed, and the draught passes entirely around the oven, its upper part is heated by the products of combustion passing over the plate *d* and also through the tubes *l l*, after passing entirely around the oven; but when the damper is open, the oven will be heated by radiation through plate *d* all around the tubes *l l*.

Claim.—Connecting the flue in front of the oven *b* with the exit-pipe at *m m* by means of a tubular flue or flues *l l*, at the top, and forming part of the top of the oven, substantially as specified, in combination with the plate which forms the residue of the top of the oven.

No. 15,318.—HENRY S. GEORGE, assignor to Himself and GEORGE GRATTON.—*Improvement in Cooking Stoves.*—Patented July 8, 1856.

Cold air passes upward through the side flues 2 and centre flue 18; when it comes in contact with the heated surface of the fire-plates, becomes highly heated and passes through the chamber 5, over a around the fire, and also through the elbow on the top of the ce ue flue. The dampers 8 and 9 serve for the purpose of turnin ese current of hot air either over or under the oven; by closing bot fire-dampers and closing the cold air fire-draught, it is obvious eated draught will then be supplied through the flues 2 and 18 wi air.

The inventor says: I disclaim, when separately considere the passing of hot air between the oven plates, and the passage fo e products of combustion; also the placing of the air-flues through d around the fire-chamber, and the supplying of the fire-draught wi eated air.

But I *claim* the arrangement, substantially as here set forth, of the air flues through and around the fire-chamber, and e hot-air channel 6, between the oven plates and the passage for products of combustion, with the dampers 8 and 9, for supplying he fire-draught with hot air.

No 15,952.—SAMUEL PIERCE.—*Improveme in Cooking-Stoves.*—Patented October 21, 1856.

The operation of this apparatus is as llows: As soon as the plates of the fire-box and upper flue become eated, they communicate their

No. 14,356.—B. F. Foering.—*Improvement in Supplementary Grating for Stoves, Furnaces, &c.*—Patented March 4, 1856.

After the supplementary grate D has been inserted, the usual grating C may be removed, cleaned, and reinserted.

Claim.—Cleaning or removing foreign substances, such as slate, cinders, clinkers, &c., from stoves, furnaces, or other heating devices, in which anthracite coal is burned, by means of the supplementary grating D, applied to the stove or furnace or inserted within it, substantially as herein shown and described.

No. 14,888.—John Starrett and Newton J. Wier.—*Improvement in Gas-Stoves.*—Patented May 13, 1856.

The distributor plate D is composed of three round plates, leaving a narrow space between its outer edge and the sides of the chamber. This plate has also a hole in its centre, through which the gas is intended to pass. G represents a fine wire-netting. The mixed gas and air passing through this is to be ignited on the top, when a flame will spread itself very evenly over the whole surface of G, consuming the gas very effectually.

The inventors say: We do not claim the chamber C, with its wire-covering, for the purpose of mixing air with gas previous to burning, nor their combination with the outer case A, as these devices are already known.

The plate D reflects the heat that strikes upon it, and thus concentrates it all upon the utensil which is being heated over the surface of combustion.

Claim.—1st. The distributor plate D.

2d. The combination of the distributor plate D, the chamber C with its net-work covering, and the exterior cases A and B.

3d. The combination of the plates or registers H H with the net-work covering of the chamber C, for the purpose of varying the surface of combustion to suit the various utensils to be heated.

No. 14,064.—Hiram B. Musgrave.—*Improvement in Gas-Cooking Stoves.*—Patented January 8, 1856.

The funnels *b* and *c*, being open at bottom, admit a nozzle *e* of a gas-burner. This nozzle has it vents *f* arranged around its sides; the pipe *g* bearing the nozzle is hinged at *h*, so as to be capable of being raised or lowered at will. When it is desired to have an annular flame, the nozzle is lowered so as to bring the vents between the funnels *b* and *c*. If a concentrated flame is required, it is raised, and the vents are brought inside the funnel *e*. A wire gauze *d* is stretched across the double-funnel for the gas to pass through.

Claim.—In combination with the concentrically arranged gas deflector *b* and *c*, the gas-burner, with lateral vents, and capable of vertical adjustment or equivalent devices, for the purposes specified.

No. 15,803.—DAVID H. FOWLER.—*Improvement in Steam-Boilers.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The arrangement of the central flue *k*, with the exterior flues *e* and apertures *g g*, substantially as and for the purposes herein decribed.

No. 16,262.—JOHN ARMSTRONG.—*Improvement in Steam Boilers.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The series of cylinders A A, placed vertically in rows, with a series of horizontal flues *a* passing through each row, and lying in the vertical plane cutting the centre of each cylinder—the space between each row of vertical cylinders being closed at the top by a horizontal flue boiler B, all the vertical cylinders being connected together at the top and the bottom, and the furnace M being located in one end of the space between the rows of vertical cylinders, the whole being arranged substantially as and for the purpose described.

No. 14,033.—THOMAS STUBBLEFIELD.—*Improvement in Steam Boiler Alarms.*—Patented January 1, 1856.

A represents a fragment of the upper side of the steam boiler. When the boiler is filled to the proper height with water, the float G and the lever F will be raised to their highest position and the valve closed. When the water lowers, the float will sink, but without disturbing the valve until it has descended far enough to let the upper extremity 2 of the slot *n* rest upon the pin *m*, when the weight of the float will depress the lever F, raise the heavy end *c* of the lever D, and open the valve to allow the steam to escape and sound an alarm, through the steam-whistle, of a deficiency of water.

Claim.—The combination of the flexible lever with the float and alarm valve, substantially in the manner and for the purpose herein set forth.

No. 16,092.—ALLEN LAPHAM, assignor to Himself and STEPHEN WILKES.—*Improvement in Combined Steam Boilers and Kettles.*—Patented November 18, 1856.

The water in the kettle C is heated by means of steam in the boiler B, which latter is heated by means of the flues E leading from the fire-box. The reservoirs D are filled through the feed pipe *f*, and the valves F serve to admit steam to said reservoir, while the feed-water enters the boiler through the valves G.

No. 14,449.—JACOB FRICK.—*Improvement in Feed and Blow-off Apparatus for Steam Boilers.*—Patented March 18, 1856.

C screws into and communicates with the steam boiler, and D forms the blow-off passage. Should the plug have been turned so as to obstruct the passage of the feed-water to the boiler, the pressure will cause the water to act on the safety-valve M, and, passing through *n*, will operate against the spiral spring *w* in pressing down the piston *q* until a portion of the water can escape down the grooves *s*, causing at the same time the bell to ring.

The inventor says: I do not claim the combining of a check-valve and stop-cock in one instrument, the same being in common use.

But I *claim*, 1st, arranging substantially in the manner set forth a check-valve F and stop and blow-off valve E, in one instrument, for steam boilers, for the purpose of avoiding the attachment of the separate and distinct connexion hitherto employed for the same purpose.

2d. The pressure-valve M, with its weighted lever O, as connected with the alarm-valve, and as arranged with the check and stop-valve, the whole being constructed and operating substantially in the manner and for the purposes herein set forth.

No. 14,191.—THOMAS FIRTH.—*Improved Feed-Water Apparatus to Steam Boilers.*—Patented February 5, 1856.

The lever 10 works freely on its axis, and strikes the pins 29 29, which moves the valve 12 either way, as the case may be, until the pin 30 (which is attached to valve 12 the same as pins 29) passes the vertical centre line of the valve, when the spring 18 attached to the pin forces the valve into its right position, so that steam can be admitted to and from the steam cylinders through pipes 17 by the openings 24 in the valve, and escape out of the opening 27 in the valve-face into the escape-pipe 13.

Claim.—The arrangement of the pistons 9 9, beam 10, pins 29 29, (attached to the valve 12,) and spring 18, or their equivalents, for giving motion to the steam-valve 12 for admitting steam to and from the steam cylinders 4 4 and pipes attached thereto.

No. 16,206.—ERASTUS W. ELLSWORTH.—*Improvement in Feed-Water Pumps for Steam Boilers.*—Patented December 9, 1856.

The pipe X forms a communication between the steam cylinder D and the steam boiler at the water line; when the water in the boiler is below that line, steam circulates through X, and when above it, water. The difference in the densities of these two fluids causes the engine to be more or less held in check and impeded according to the height of the water in the boiler; and the feed-pump piston I, connected to the steam cylinder piston E, is thus regulated in its operation.

The inventor says: I *claim* the method of making a steam pump, when applied to maintaining the level of water in steam boilers, or of

No. 15,424.—E. T. INGALLS.—*Improvement in Steam Boiler Furnaces.*—Patented July 29, 1856.

The inner cylinder *e* is filled with fuel and fire applied to the same at the grate. When the coals become heated as high up as the draught holes *o o*, then the heated gases pass through said draught holes up through the flues *k*, and finally escape through the flue *n*. The gases are prevented from escaping direct through the flue *n* by means of the partition *l* provided with small draft holes *p*.

Claim.—The improvement in steam boilers which consists in arranging a fire pot of sufficient depth to contain a large quantity of fuel, within or about and underneath the boiler, placed concentrically therewith, in such a manner as to keep the fuel which is in contact with the lower part of the furnace in a full state of combustion always, as set forth.

No. 15,825.—ASBURY M. SEARLES.—*Improvement in Steam Boiler Grates.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claims and engraving.

Claim.—1st. The described conical grate *k n o*, formed by diverging radial bars, and having the described recurved margin, or otherwise, or equivalent devices, for the purposes explained.

2d. In the described connexion with a conical grate, the radial series of pokers *p*, or its equivalent, having the explained shearing action between the grate bars.

No. 14,835.—THOMAS SLOAN.—*Improvement in Heating Feed-water Apparatus for Steam Boilers.*—Patented May 6, 1856.

The water is driven by the feed pump through the pipe D, and descends into the purifying vessel P, where the level remains the same as in the boiler, the upper part thereof and the chamber G being filled with steam at the same pressure and temperature as in the boiler. In descending through the steam in the purifying vessel, the water is heated so as to cause the precipitation of the greater part of its impurities; and as the upper part of the body of water in the purifying vessel is heated by the steam in the chamber G, it is kept heated above the boiling point, while that in the lower part is cooler, and the precipitation is there finished; and the mud is caused to settle at the bottom of P, while the mineral matter is caused to encrust itself upon the sides of the upper part of said vessel.

Claim.—1st. A vessel separate from the boiler but communicating both with the steam and water chambers thereof, in which the water, previously to its entrance to the boiler, is heated by passing in a thin stream through the steam in its upper part, and also by the contact of the steam with the top of the body of water contained therein.

2d. The arrangement of the purifying vessel, the pipe D with its funnel mouth, the internal heating chamber G, and the pipes E and F

ıe object of the auxilliary chamber B is to diminish such causes of sturbance of the proper operation of the tube A as are produced by e evolution in a tube attached directly to a boiler, and by incrustation d other causes. The gauge A is composed of two concentric sections glass tubes h^1 and h, mounted in the grooves of metal rings, so that case of breakage of one tube the gauge may still remain in working ndition.

The inventor says: I do not claim combining with the gauge A a parate receiving chamber B, arranged between it and the boiler and nnected to both by pipes; but I *claim* applying the said chamber B, arranging it with respect to the gauge, so that it shall partially surund the same, and form a niche or recess H to receive such gauge d radiate heat upon it towards its axis, for the purpose specified; e said recess H being provided or not, as the case may require, with e curved cover or slider I, made to operate therewith, substantially set forth.

I also claim constructing the gauge in tubular sections of glass or ıer suitable transparent material, in combination with providing the me with a clamp frame or apparatus and connexion rings and cups, bstantially as described.

). 16,054.—JOHN C. HARRIS.—*Improvement in Water Gauges for Steam Boilers.*—Patented November 11, 1856.

The nature of this invention consists in employing a medium specifilly lighter than water, such as oil, within the gauge chamber S, to float ion the water and to carry the float *m* of the gauge *n;* so that said uge may indicate the height of the water in the boiler *b*, irrespective the varying density of said water, due to the concentration of mud saline matter.

Claim.—The arrangement of the float chamber S, the stop-cock *s*, d the blow-off cocks, to adapt the gauge to the employment of oil, ter posed between the float and the water to carry the float, substanılly as set forth.

). 16,182.—F. A. HOYT.—*Improvement in Water-Guages for Steam Boilers.*—Patented December 9, 1856.

This invention consists in placing the moving parts of the indicating paratus, consisting of float H and rod I, which are connected with al *m* by means of rod *k* and shaft *f*, within a separate dry steam amber L, so arranged over a detached vessel C, outside the boiler, at no water is at any time admitted to it, whereby the shaft, which sses through the outside, is entirely removed from the influence of diment.

Claim.—The described arrangement of the outside vessel C, the dry eam chamber L, and the float H, having a direct communication with e indicating hand, and operating in the manner substantially as set rth.

throttle-valve or cut-off; but when it is in operation in the water, the resistance of the water to the paddles of the governor-wheel will cause the said wheel to move relatively to the paddle-wheel, and by that means give the throttle-valve or cut-off more or less opening.

No. 15,056.—WILLIAM BAXTER.—*Improved Hydro-Steam Engine.*—Patented June 10, 1856.

When steam is admitted to the steam-chest, it will pass down the passage G and D to the small cylinder C, and passing through the holes in the piston fitted thereto, will force down the valve *t* and force the water in the main cylinder B through the valve Q, causing it thereby to take a direction, as indicated by the arrows, through the turbine. The water passes then through the valve Q into the cylinder B^1, raising the float M^1 and closing the valve t^1, and then forcing up the small piston until its rod E^1 acts upon the sector F, to shift the valve by which the direction of the action of the engine is reversed.

Claim.—The method, substantially as described, of imparting rotary motion to a wheel or wheels by the pressure of steam, or other equivalent expanding gas, acting alternately on the opposite one of two columns of water or other liquid connected together, to cause the said water by such alternate action to pass through and impel the wheel or wheels.

No. 14,967.—WILLIAM W. H. MEAD.—*Improvement in Instantaneous Governors for Steam Engines, &c.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Combining the fly-governor with the throttle-valve C by fitting it loosely to the spindle D, and driving it by friction from a wheel F which is loose on the same spindle, and which derives its motion from the said spindle through a spring *e;* the said wheel F being connected in any convenient manner with the throttle-valve or cut-off, so that it may be caused by the retarding or advancing effect of the moment of inertia of the governor or fly, as the speed of the engine is suddenly increased or diminished, to diminish or increase the supply of steam to the engine.

No. 14,239.—BIRDSILL HOLLY.—*Improvement in Condensing Steam Engines which are used for Pumping.*—Patented February 12, 1856.

The steam engine A and pump B represented in the engravings are rotary. The nature of the improvement will be understood without further description.

Claim.—Leading the eduction steam pipe F of a steam engine A into the suction pipe C of a force or lift pump B, substantially as herein described, whereby the condensation of the steam is effected, and a partial vacuum produced without a separate condenser and air pump,

No. 15,685.—WILLIAM A. CLARK.—*Improvement in Steam Engines.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The arrangement of two or more pistons on the one piston-rod within the one cylinder, divided into compartments, the movement of each piston being limited to its respective compartment, and all the pistons travelling in the same direction, as set forth.

No. 15,181.—HENRY J. HAWKINS and THOMAS HAWKINS.—*Improvement in Adjustable Cut-Offs for Steam Engines.*—Patented June 24, 1856.

The nature of this invention will be understood from the claim and the engraving.

9 represents an end view of the rock-shaft, with bearing bracket removed; 18 the index rack; 6 the lower steam valve lifting-rod; 17 the rest block and carrier for self-inserting toe.

Claim.—The adjustable cam 13 and self-inserting toe 15, which, when combined together on any rock-shaft motion for working steam valves, can cut off the steam at any given point on either motion of the piston at a moment's notice.

No. 15,650.—ANDREW HARTUPEE and JOHN MORROW, assignors to JOSEPH P. HAIGH, ANDREW HARTUPEE and JOHN MORROW.—*Improvement in Adjustable Cut-Offs for Steam Engines.*—Patented September 2, 1856.

When the stroke of the engine commences, the crank m turns the shaft n, and simultaneously with the lifting by the lifter g of the lever s and exhaust valve k; the box t being turned on its centre on the shaft n (in the opposite direction from the lifter g) tilts up the extremity of the lifter h, on which rests the point of the lever r^1 of the adit valve i to admit the steam into the forward end of the cylinder. In this elevated position it would retain the lever r^1, were it not that the slide w being drawn back in its way v by the action of the cam e^1 and cam rod c^1 before the stroke is terminated, the upper extremity of the stop z attached to the screw-shaft y comes in contact with the projecting extremity of the T-shaped lifter h, and draws it back in its box t, until the point on which the lever r^1 rested is drawn into the box t; and no longer supporting the lever r^1, the lever drops at once, cutting off the communication of the steam with the cylinder by closing the adit valve i. On the return stroke of the engine, the like process is repeated with the other adit valve i^1. The closing of the adit valves can be regulated by adjusting the stops z z^1 on the screw y, which, being provided with right-and-left hand screw-threads will cause the stops to move in opposite directions when said screw is turned.

Claim.—The combination of the T-shaped lifter, slide, screw, and stops, or their equivalents, constructed and arranged as described, and operating as an adjustable cut-off for steam engines, in the manner set forth.

discharged through the apertures of pipe *e*, at the same time that a blast of cold air is forced from a ventilator H into the condenser, and in between the flat tubes and the cross-tubes *g* in the condenser. As the air becomes heated, it passes back through the pipe S to assist the furnace, while the condensed water is collected in the receiver D.

Claim.—I claim the combination of the flat vertical tubes, connected by horizontal tubes with new rose pipes inside, and surrounded by the outer case, to condense by the combined action of air and water, substantially as described.

No. 14,486.—ORVILLE LEONARD, assignor to Himself and GEORGE H. REYNOLDS —*Improvement in Cut-Off Gear for Steam Engines.*—Patented March 18, 1856.

The rocker *d* vibrates with crank *c* around *f*, it being connected with the eccentric rod D by means of arm H and link I. Through the centre of the rocker passes a post *g*, which is connected with the governor K by lever L and rod *m*. The bar G has a slot which locks with the post *g*. If the governor balls fall, the post *g* is projected in proportion above the surface of the rocker and, in taking hold of G, raises the valve until the post is withdrawn by the motion of the rocker, when the valve will close by the weight E. If the balls rise still higher, the post is withdrawn beneath the surface of the rocker, and the valve is not raised.

Claim.—The rocker *d*, toe *g*, and bar G, constructed and arranged as described, and operating substantially as herein set forth.

No. 14,699.—JOHN S. SHAPTER.—*Improvement in Cut-Offs for Steam Engines.*—Patented April 15, 1856.

The lower steam valves being raised by the rock-shaft B, the plunger J attached to the bottom end of the lift-rod G raises the valve L and allows the fluid to fill the supporting chamber K. The dropping of the toe E from the lift E^1 leaves the lift-rod held up by the fluid; the turning of the rock-shaft drops down the connecting-rod U, and the thimble i^2 striking the adjustable nut O, and raising the discharge valve M, allows the fluid contained in the supporting chamber to be discharged back into the reservoir N, and the lift-rod G and the steam valves i i^1 to drop back into their seats. As soon as the thimble i^2 raises the discharge valve M its given height, the weight W is upheld by the nut P striking Q, and the link in the end of rod U slips on the pin in the arm T, until the motion of the rock-shaft is reversed, and the link catches the pin and raises the lever T, disengaging the thimble i^2 from its contact with nut O, and allowing the discharge valve M to return to its seat by its own weight and that of its attachments.

Claim.—Holding up the poppet steam valves of a steam engine by the fluid contained in a supporting chamber K, and adjusting the discharge of said fluid from said chamber for the purpose of dropping said steam valves, and cutting off the supply of steam to the cylinder at different points, as may be required.

saddle *e e*, hollow valve *h*, and chest K, substantially as described, for passage and distribution of steam in cylinders of oscillating steam engines.

No. 14,778.—JOHN B. ROOT.—*Improvement in Rotary Steam Engines.*—Patented April 29, 1856.

Upon the outside of the cylinder *a a a* is constructed another shelf *b b*, concentric with the first, and forming a chamber between the two, which chamber contains a partition so as to divide it into two equal passages extending the whole circumference of the engine. The steam is admitted under the rubber *i i*, through ports *o o*, in the inner cylinder. The roller R^1 being in advance of the opening below the stop-bar *p*, the steam is let into the chamber connected with this port; the steam, passing through this port under the rubber behind the roller R^1, carries it forward. The roller R^1 in passing the bar p^1 loses the steam pressure by the steam escaping out of the opening at the bottom of the chamber to which the roller has passed and into the passage communicating with the exhaust W; as soon as the roller R^1 passes the stop-bar p^1, it again takes the steam behind it from the steam port above the stop-bar. The other rollers take and lose the steam in the same manner. The engine is reversed by means of slide *r*.

One of each pair of arms *g g* being fixed to the stationary plates *f f*, and the other of the same pair being fixed to the movable disks *d d*, it follows, that, if the movable disks are turned on the shaft D, they will draw closer together, or separate the friction rollers g^1 g^1 of each pair, according to the direction in which the movable plates are turned; and hence, according as the friction rollers are nearer together or wider apart, will the piston rollers R R R^1 be carried close to the lining *i i*, or withdrawn from it towards the central shaft D.

Claim.—The contrivance of the steam ports, passages, and stop-bars, arranged in connexion with the piston rollers, so as to let the steam in upon the rubber at different and opposite sides of the cylinder at as many places as the number of rollers used shall require; thus acting upon the rollers from different and opposite points, thereby relieving the centre shaft from side pressure and friction, and also increasing the power of the engine with the increase of the number of steam ports and piston rollers.

I also claim the arrangement and device of the movable plates *d d*, and the stationary plates *f*, and collar, with the friction rollers y^1 and metallic bars or arms *g*, for the purpose of adjusting the piston rollers.

No. 15,281.—JAMES M. COLMAN and THOMAS TURTON.—*Improvement in Rotary Steam Engines.*—Patented July 8, 1856.

The steam, entering the induction chamber I and passage J, constantly issues from the openings *i i* into the cylinder, as shown by the arrows, and acts between one of the abutments and the face *e f* of the piston, thereby giving the piston a rotary motion in the direction of the

rim *d d*, whose interior fits at one point to the outer of the cylinder, and its interior at a diametrically opposite point, to a central circular block D, said rim working within a slotted rocker H in an oscillating abutment E, the whole operating substantially as set forth.

No. 14,923.—JAMES M. MILLER.—*Improvement in Surface Condensers for Steam Engines.*—Patented May 20, 1856.

The steam passes into the trunks *a* of the condenser, through the induction pipe a^3; but just before it reaches the condenser it enters a receptacle under an evaporator 2, from which a number of tubes project upwards. This evaporator 2 is filled with impure water. A pipe 2^1 leads from the evaporator into the steam pipe, so that the vapor from the water in 2 rushes into the condenser, and the evaporation goes on under a vacuum in the evaporator, produced by its connexion with the condenser; the whole supply, thus condensed, runs down into the coils *g* and passes through the pumps at *h*, where it is forced through pipe *k* up into the small reservoir *l*. Here the air, oil, and gases are occasionally blown off through pipe l^1. The water passes below into the upper chamber of case *c*.

The water in the upper section of case *c* is hot, while below the division plate c^1 the cold water enters through pipe *m* into chamber *f*, and thence through holes in the plate *e* into the space below *c*, whence it passes off through pipe *n*.

The inventor says: I do not wish it understood that I confine my claim to this precise form of tubes, in connexion with using the condensed steam in the main body of the apparatus above, as many various forms might be used. Nor do I confine myself to the precise quantity of cooling surface below, as it requires much less surface, in proportion, on a large scale than a small one. If vacuum is not required, it may be dispensed with entirely.

Claim.—Passing the water of condensation in or upon the main body of the condensing surfaces, on its way to the boiler, under the pressure of the steam, and the cold external water on the other portion of the surface.

No. 14,932.—NATHAN THOMPSON, jr.—*Improvement in Surface Condensers for Steam Engines.*—Patented May 20, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—1st. An elastic junction of a tube *d* with a tube-sheet *b*, composed of a thimble *c* on a tube-sheet, and a short piece of elastic tubing *g* applied thereto, and to a tube end or a collar *f* on a set of tubes.

2d. I claim uniting firmly several small tubes into a collar, which latter is attached to a tube-sheet, by means of a slip, or elastic joint, whereby several tubes require only a single stuffing-box, or elastic junction, in order to compensate for their expansion and contraction.

No. 14,082.—WILLIAM H. BROWN.—*Variable Dial for Dividing Engines.*—Patented January 15, 1856.

The nature of this improvement consists in causing both the index E and dial D to rotate at the same time, either in the same or contrary directions, with such relative velocity that at the completion of a revolution of the main shaft S one point of division in the dial shall occupy the position which one of the others had at the beginning, or shall resume its own position, having made one or more revolutions in the mean time, thereby causing a difference in the number of divisions made in a circle rotating with the main shaft from what would have been made had the dial been stationary, equal to the number of such points of division in the dial that pass a fixed point during the revolution of the main shaft—less or more, according as the dial turns in a direction with or contrary to the index. For this purpose is made use of the toothed wheel H fixed on the main shaft; the adjustable stud *l* for intermediates of various diameters, which are used for transmitting motion to the dial plate in such proportion as may be desired, teeth being cut in its outer edge for this purpose; the stud *k* for a second intermediate, when required to give the dial a contrary motion.

The inventor says: I do not claim the use of gearing as a means of transmitting or varying rotary motion

But what I *claim* as my invention, and which I desire to secure by letters patent, is causing both the index and dial to rotate at the same time, by means substantially the same and for the purpose set forth in the foregoing specification.

No. 14,891.—JOHN VAN AMRINGE.—*Fire and Escape Ladder.*—Patented May 13, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—The combination of the ladder 2, frame 7, and guy chains 2 3, as attached to the frame-work 17 17, and these in combination with the pulley 3 and rope 24, or their equivalents, for elevating the latter and frame.

I also claim the arrangement of the guiding shafts 21, arranged with the two sections of the framing 17 and the windlass 1, and the cord connected therewith and to one of said sections 17, for drawing the two sections apart and together.

No. 15,539.—CHARLES W. WILLARD and JOHN P. WILLARD.—*Improvement in Valve-Gear for Steam-Hammers.*—Patented August 12, 1856.

During the reciprocating movement of the trip-hammer, the actuator L, turning on a pin M which projects from a hanger N which turns on a pin projecting from the shank of the trip-hammer, will be raised and depressed and alternately brought in contact with the adjacent in-

Claim.—1st. Combining the sliding bolt *q*, by which the sector on the fore truck is locked, with the rotating shaft R, which carries the gear which operates upon the sector to turn the fore truck, by means of a loose collar *t* and groove *u*, or in an equivalent manner, whereby the bolt may be operated by a longitudinal movement of the said shaft, as fully described.

2d. Fitting the sprocket wheel P to the shaft K, which drives the fore wheels, with a universal joint, to enable it to adapt itself to the direction of the driving chain when the said shaft K is not parallel with the engine shaft, and thus to prevent the chain slipping off the wheel, or being twisted or broken, substantially as described.

No. 16,220.—Samuel Carson, assignor to The American Railway Manufacturing Company.—*Method of Charging the Receiver of a Locomotive with Compressed Air from fixed Stations.*—Patented December 9, 1856.

As the locomotive *b* moves along the track *a*, the pipe *d* of the receiver enters the bell-mouth *t* of the charging cylinder *n*, and forms an air-tight joint with the same by means of the elastic mouth-piece h^1. The carriage of the charging cylinder gradually curves off on the tracks *j*, the compressed air passing constantly from the charging pipe *x* to the receiving pipe *d*. When the carriage of the charging cylinder stands at right angles to the main track, then the pipe *d* begins to move out of cylinder *n*, and the valves *v* and *g* are closed by their respective springs, and the locomotive is charged.

The inventor says: I do not limit my claim to the special construction and arrangement of the parts, as these may be greatly varied.

I do not claim the propelling of locomotives on railroads by the elastic force of compressed air or other permanently elastic gas, nor to the charging of compressed air or gas into the receiver of a locomotive at given stations along the line of a railroad, when this is done by stopping the locomotive, to connect the receiver with the supplying apparatus, as these have long been suggested and described.

I *claim* the method, substantially as described, of charging the receiver of a locomotive with compressed air or other permanently elastic gas, from fixed stations, whilst the locomotive is in motion and passing the station, by means of the self-adapting apparatus, substantially as described, or equivalent thereto.

No. 14,187.—Peter S. Ebbert.—*Improvement in Heating Feed-Water Apparatus for Locomotives.*—Patented February 5, 1856.

1 is the pipe forming a connexion with the pump 2 and the heater at 3; 4 the discharge pipe from the heater, the connexion being at 5 and passing into the boiler through check-valve 6; 7 is the branch of pipe 4 having a junction at 9 and also a connexion with the top of the check-valve 6, or any part of the boiler which may be used as a return sup

Claim.—The combination of the rigid radial arms P P with the flexible and elastic disk or surface R, for covering the joints of these radial arms steam-tight, when yielding or moving by the force of steam or water to correctly indicate the pressure thereof, the radial arms P P being fitted so as to operate so close to each other as to prevent the surface R from bagging, essentially in the manner and for the purposes fully set forth.

No. 15,259.—WILLIAM MONT. STORM.—*Improvement in Steam Pressure Indicators and Regulators.*—Patented July 1, 1856.

The regulator being located in the plane of the desired water level of the boiler, if the water in the latter falls, steam fills the tube A, heating, expanding, and buckling it, and moving the arm E by means of the spiral grooves. When the water rises on F^1, working in a sleeve G, as shown, water will fill the tube A, displacing the steam and cooling, contracting, and straightening the tube, rotating the arm in the opposite direction. One end of A passing through a hole in the corresponding end of the casting B is plugged steam-tight with the plug C, against which presses the key plug D, so as to give the tube A so much buckle at the ordinary temperature, that if the apparatus was reduced far below zero it would not bring the tube more than straight, or injure the instrument were it left improperly exposed, filled with water, and frozen up.

The inventor says: I have no claim to the use of a tube which, admitting the steam within, saves the steam case and stuffing-box, nor any claim to the double communication (hot or cold) with any form of thermostat; nor do I lay any claim to the expedient of the buckling motion, whether of tube or bar, separately considered.

But I *claim* the combination of a simple steam-tight metal tube A with a fixed and open (not steam-tight) frame or support B, in which both of its extremities are held stationary, while the motion of its middle, left free, is communicated to its work in such manner, or by a device combined with the instrument, as to multiply its range of action; the communication of the tube with the steam of the boiler being separate and distinct, moreover, from that to the water space of the boiler, and filled with a cold fluid, and so arranged as not to allow any circulation through it of the heated water from the boiler—the instrument, as a whole, being substantially as described and shown.

I also claim in combination with the tube the "key nut," or its equivalent, for the purpose explained.

No. 15,229.—WILLIAM S. GALE.—*Improvement in Steam-Pressure Regulators.*—Patented July 1, 1856.

The groove F in the bottom of piston B fills with air when the pressure is applied, thereby preventing any leak of steam; G is a gasket clamped between the base E and the cylinder A, overhanging the

sound both as regards degree and duration. The shaft *c* of the cylinder A, with the spiral grooves *a a*, is intended to be geared with one of the truck-wheels of the locomotive in such a manner that the periphery will rotate not less than about six inches for every mile. The pin *e* of lever D moves in the grooves *a*, striking from time to time one of the lifters $f\ f^1\ f^2\ f^3$, whereby the other end of the said lever is depressed, causing the whistle to remain open, in proportion to the length of the respective lifter, and to sound.

Claim.—The within described apparatus, consisting of the spirally slotted or grooved cylinder A, for connexion with and operation by the locomotive, detachable and adjustable lifters ($f\ f^1\ f^2\ f^3$) of varying thickness, length, or breadth, and lever D, or its equivalent, in combination with and for operation on the whistle E, as and for the purposes set forth.

No. 14,709.—ALEXANDER BUCHANAN.—*Improvement in Balance and Slide Valve for Steam Engines.*—Patented April 22, 1856.

The steam entering through c^1 flows on and enters the channel f^1; from this it passes into the parts *a* or a^1, according to the position of the valve, the exhaust through *b* being as usual. Steam will also flow through the pipe *i* into *m*; here it escapes by raising the valve l^1, and thence passes into the steam case *h* through *i*; but unless means were taken to prevent it, the pressure in *h* would soon be equal to that in *f*, and of course, as the outer surface of the valve exposed to the pressure of the steam is much greater than that on the under side, it would be forced down upon its seat. This is prevented by shutting off the flow of steam through i^1 so soon as enough has entered *h* to accomplish the object; and this is effected by means of the piston k^1, (figure 4,) where a branch pipe m^1 leads a portion of the steam off from i^1 into the cylinder *k*, and, acting on the piston k^1, forces down the valve l^1 and stops the further influx of the steam through *i*; the areas of the piston k^1 and valve l^1 being to each other as the respective areas of the outside of the valve *f* and of the channel f^1.

Claim.—The means of maintaining the differential pressures on the two sides of the valve necessary for balancing the same; that is to say, the combination of an apparatus, substantially as described, with the valve, as set forth.

No. 15,208.—WILLIAM WRIGHT.—*Improvement in Cut-Off Valve-Cherks for Steam Engines.*—Patented June 24, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The arrangement for retarding the descent of the valve, namely: The combination of the bell crank *q r* with the valve-rod A on the one part, and the dash-pot *o* or equivalent resisting apparatus on the other, so coupled and operating that the arm *s* of the crank *r r* to which the valve is attached shall be approaching its centre when,

lifter E and operates the valve, but at the same time comes in contact with lifter E, depresses the short end, and raises the long end; the spring bolt *e* falling into catch-piece *d* and holding up the secondary toe I, which holds up lifter E until its point *s* passes the rounded edge *n**, when the lifter is gently lowered to close the valve by the point *s* working up the face *n n**. The spring bolt *e* is now liberated from the catch *d* in passing the edge *n**, and the secondary toe is drawn into the recess of the main toe before lifting the valve again. By adjusting the sliding-piece G, the lifter E can be caused to be held up a longer or shorter time, for admitting a greater or smaller portion of steam to the cylinder.

Claim.—I claim the secondary toe I, applied to the main toe D, and operating substantially as described, in connexion with a sliding piece G, or its equivalent, fitted to the lifter E, for the purpose set forth.

No. 14,580.—WILLIAM STEPHENS.—*Improvement in Valve Gear of Oscillating Engines.*—Patented April 1, 1856.

The slot *g* is made in a circular plate G, which is capable of turning in a circular frame H, which is rigidly attached to the slide *h;* the plate G is secured to the frame H by means of a set-screw *n;* by turning or adjusting the plate G by means of a handle H^1, so as to bring the ends of the slot *g* nearer in line with the slot *h*, the lead is diminished; and by turning it so as to bring the ends more out of line with the said slide, the lead is increased.

Claim.—The within described arrangement of the slotted plate G in the slide *h*, or its equivalent, for the purpose of adjusting and varying the lead of the valve, as set forth.

No. 14,620.—H. H. SMITH.—*Improved Governor Valve for Steam Engines.*—Patented April 8, 1856.

The nature of this improvement consists in furnishing the stem 4 of the valve with two rings 8 8, which are fitted to eccentrics 5 and 6, and made to slip on said eccentrics so as to adjust themselves to the seat of the valve by the steam pressing against the outside edges of the ring, thereby keeping them up against the valve seat at all times and forming a steam joint, without being subject to so much friction as to affect the action of the governor upon the valve for regulating the proper quantity of steam admitted to the engine.

Claim.—The self-adjusting rings 8, combined with the eccentrics 5 and 6, or their equivalent, operating substantially as and for the purposes set forth in the foregoing specification.

No. 14,516.—HORATIO O. PERRY.—*Improved Valve-Motion for Oscillating Engines.*—Patented March 25, 1856.

V is the vibrating valve, S the valve-shaft, O the steam-chest, and P the cylinder. The valve-shaft S is provided with the two arms X

open the valves and for lowering the same bodily to close the steam-valves.

5th. Closing steam-valves that have been opened by moving the steam-toes, or their equivalents, bodily, without changing their angular position, the distance required to shut the valves.

No. 16,227.—JOHN BUTLER.—*Improvement in Valve-Motions for Steam Engines.*—Patented December 16, 1856.

As the main shaft S is rotated, the eccentric G, rock-shaft E, rocker g, and stud g^1, operate on the yoke b, to move the valve C in either direction to open one of the ports to admit steam to one side of the piston; and the other eccentric H, rock-shaft F, rocker h, and stud h^1, operate on it to move the valve back again only far enough to cut off the steam, leaving the movement which is necessary to open the other part to admit steam on the other side of the piston to be completed by the eccentric G, rock-shaft E, rocker g, and stud g^1.

The inventor says: I do not claim the use of two eccentrics to give the valve two distinct movements to admit and cut off the steam.

But I *claim* the arrangement of the two rock-shafts E F, with their rockers operating upon a yoke b, or its equivalent, attached to the valve-stem, said rock-shafts deriving motion from separate eccentrics, and the whole operating substantially as described.

No. 14,225.—CHARLES W. COPELAND.—*Improvement in Valves and Exhaust Passages of Steam Engines.*—Patented February 12, 1856.

The object of this improvement is to secure a larger passage for exhaust than for steam, without complicating the valve gear; and the improvement consists in so constructing the valve and seat that the former shall, in its operation, open two or more passages for the exhaust, instead of one, as is the case with the valves commonly used. For instance, when the valve occupies the position shown by dotted lines, steam is entering the left end of the cylinder at r by the end passage, while the centre passage is closed by the bar; while at the other end of the cylinder all three passages are open into the cup and exhaust passage.

Claim.—The herein described manner of increasing the area of the passages for escaped steam by means of bars, or their equivalents, making part of the valve, acting in conjunction with additional apertures or ports in the seat, substantially in the way and for the purpose herein set forth.

No. 15,207.—WILLIAM WRIGHT.—*Improvement in Operating Cut-Off Valves for Steam Engines.*—Patented June 24, 1856.

a a represents the yokes to which the lift rods A and A^1 are attached. The toe b is keyed to the rock-shaft b^1. Through the slot c^1

upon the area of the piston H is so much taken from the back of the steam-valve A, and transferred, by means of the swinging-bar G, to the point of support S.

Claim.—I claim transferring steam pressure from the back of a steam slide-valve to a fixed point, by means of a piston and vibrating link, substantially as described and for the purposes set forth.

No. 14,749.—Henry R. Worthington.—*Improvement in Completing the Throw of the Valves of Direct-Acting Engines by the Exhaust Steam.*—Patented April 22, 1856.

The engraving represents the steam admitted through the central opening C on the point of passing into the right-hand end of the cylinder, while the exhaust fills the space D. The steam acting on the piston A uncovers the openings a^1 and b^1, which latter communicates with the escape-pipe or condenser. Thus, the necessary motion of the steam-valve is produced by the effort of the steam to escape from the small cylinder B. A similar operation takes place at the end of the return stroke.

Claim.—Completing the throw of steam-valves of direct-acting engines by the steam already within the cylinder on its way to the open air or to a condenser.

No. 14,338.—Jacob Scheitlin, assignor to Himself and Oliver A. Dailey.—*Improved Arrangement of Means for Operating the Valves of Steam Engines.*—Patented February 26, 1856.

The surface of the cylinder B is provided with two rectilinear teeth *a a* and two screw-thread teeth *b b*. The indentations a^1 a^1 of the cross C are adapted to the teeth *a a*, and the indentations b^1 b^1 to the teeth *b b*. The cross being free to slide on its shaft H, by means of a feather *f*, receives from the cylinder and transmits to the crank C^1 (to which latter the valve-rod E is connected) a motion corresponding to the relative position of the cross and cylinder.

Claim.—The four-teeth cylinder B, keyed on the main driving or crank-shaft A, the Maltese cross C, with its shaft H, and the small crank C^1 keyed thereto; said cross, by means of the feather *f*, or any equivalent device, being susceptible of a free and steady to-and-fro motion along whilst driving its shaft H, and being so moved by the rack and pinion D, a screw, or other equivalent means, by which also it can be retained on its shaft H in any desired position in relation to the cylinder; the whole being arranged, connected, and operated substantially as herein set forth, whereby a single steam-valve of a steam-engine can be worked either as a feed-valve, or as a feed and as a cut-off valve alternately, and the steam cut off at any required point of the stroke whilst the cylinder is in operation.

forced out by the steam, a portion of the packing *b* is placed between the spring *d* and the lip *e* of the piston-cap F.

Claim.—The lip *e* of the piston-cap F and the spring *d*, arranged in relation to each other and to the piston body, for the purpose of clamping the packing *b*.

No. 15,834.—HENRY F. SHAW, assignor to Himself and GEORGE F. SHAW.—*Improvement in Regulating Valves for Steam Engines.*—Patented September 30, 1856.

By reference to the engraving it will be seen that as the velocity of the regulating balls increases, the gates *m* will be raised and the steam way through the ports *c* of the valve D will be diminished; and as the velocity of the balls decreases, the gates *m* will descend and an increased amount of steam will be admitted.

Claim.—The regulating gates *m*, as connected with the valve D and the governor, for the purpose set forth.

No. 15,120.—ROBERT CORNELIUS.—*Improvement in Safety-Valves.*—Patented June 17, 1856.

As soon as the steam raises the valve A in the slightest degree, immediately the equilibrium of the weight W is destroyed, and the weight W falls forward, and raises up D and A to its highest point, thus instantly affording a large and free issue of escape for the steam until the engineer restores the weight to its former upright position.

Claim.—The arrangement of the weight and lever of an ordinary safety-valve, so that as soon as the steam reaches its limit of pressure the weight shall so change its position as to open and keep open the aperture of discharge of steam, in the manner and for the purpose substantially as herein before described.

No. 14,963.—ALEXANDER B. LATTA.—*Improvement in Safety-Valves for Steam Engines.*—Patented May 27, 1856.

The safety-valve lever E operates upon the spring balance D by means of the quadrant A B, which turns on a pin C; as the crank A approaches a perpendicular position, the power required to hold it must be increased at the same time the crank B is nearly horizontal, which gives the safety-valve the advantage over the spring balance, and *vice versa*. In this way the lever is allowed to rise, without increasing the power thereby.

Claim.—The mechanical means herein described for the purpose set forth, or any equivalent arrangement.

No. 14,611.—WILLIAM M. HENDERSON.—*Improved Arrangement of Slide-Valves and Means for Operating them.*—Patented April 8, 1856.

The cylinder has five ports: E is the exhaust port, *e e* are the eduction ports, and *i i* the induction ports. The valve *s* operates on the

the lever is introduced, forming the valve V; C the inlet to the chest; D, is the outlet; O and F cavities for the reception of oil.

Claim.—1st. Moving a vibratory flat or curved slide-valve within its chest, without the necessity of a stuffing-box, by the means or similar ones to those described.

2d. I claim, substantially, the method of lubricating slide-valves, as described, by and through an aperture of the valve or its seat.

No. 14,999.—WILLIAM BURDON.—*Improvement in Relieving Slide-Valves from the Pressure of Steam.*—Patented June 3, 1856.

By this improvement the steam is prevented from acting upon the back of the valve, except on the narrow margin *a a*, which is sufficient to receive the requisite pressure for keeping the valve tight.

Claim.—The employment of a hollow cylinder E, with a closed head *b*, supported upon wheels F F, to run back and forth on the valve-seat B, or on ways parallel thereto, and receiving a piston C, attached rigidly to the valve, and thereby being caused to travel with the valve, and relieve it of all pressure of steam beyond what is necessary to confine the valves to its seat.

No. 14,125.—CHARLES H. BROWN & CHARLES BURLEIGH, assignors to THE PUTNAM MACHINE CO.—*Improvement in Means for Regulating and Working Steam-Valves as Cut-Offs.*—Patented January 15, 1856.

In proportion as the balls of the governor diverge, the rod V is raised, and the end of the lever *d* is withdrawn from the slot in the bottom of the stem *g* of valve A^1, thus carrying the shoulder *f* further from the circle of revolution of cam *h*. When the balls are at their highest point the shoulder *f* is withdrawn, (see fig. 2,) so that the cam revolves without touching the lever, and the valve is not opened.

Claim.—Operating the valves by means of the revolving cams *h*, in combination with the bent levers *d* and their combination with the governor, in the manner and for the purpose substantially herein set forth.

No. 14,145.—JAMES P. ROSS.—*Improvement in Means for Operating the Steam-Valves in Blower Engines.*—Patented January 22, 1856.

The piston moving in the direction of the arrow in fig. 1, the head piece *i*, by pressure on the under edge of cam *t*, lifts the right-hand end of yoke *y*, and through rod *r* lets on the full head of steam; when *i* leaves the cam *t*, and after passing up cams t^1 and t^2, it presses against rim *w* and slightly lifts the left-hand end of the yoke and causes rod *r* to cut off the steam, the weight c^3 acting with it to depress the opposite end of the yoke.

VII.—NAVIGATION.

No 14,903.—James Beetle.—*Improved Boat-Framer.*—Patented May 20, 1856.

In using the machine, its keel rests *m m* are fastened to the keel timber, and so that the plane of the machine shall stand transversely and at right angles to the said keel timber. The rib timbers are next introduced between the parts *m m*, and fastened on the keel; they are then to be bent around against the outer edges of the bars *c d e f* and between the clamp-bars *a a* or *b b*, the screws thereof being set up so as to cause the rib timbers to be held in place, or such timbers may be tied or secured to projections *t t* extending upward from the bars *n o*.

Claim.—The boat-framer, as composed of the sets of adjustable and extension bars *a a*, *b b*, *c d*, *e f*, and connecting contrivances, viz: the keel rests *m m*, bars *n o*, and their screws.

No. 14,565.—George W. La Baw.—*Improved Life-Boat.*—Patented April 1, 1856.

Figure 3 represents the inner boat; J J are pivots on which the inner boat is suspended; B B are the ends of the outer boat, which contain the air chambers I I (see figure 5); C C are the seats; figure 4 represents an end view of the inner boat; F are ports for ventilation; G is the cabin door. The sides of the boat are constructed so that the top and bottom are the same as shown in figure 1.

Claim.—Arranging the carriage or inner boat upon pivots, so as to allow the outer boat to rotate over and around the inside boat or carriage, which always retains an upright position, when constructed and operated as described.

No. 15,794.—Rufus Rode, assignor to John Denig.—*Improvement in Boat Oars.*—Patented September 23, 1856.

By operating the handle B attached to the lever 3, the connecting plate 4 will cause the oar A attached to the corresponding arm 3 to be moved in an opposite direction. By this arrangement the oarsman can row the boat, having his face fronting the bow. The oscillating plate 2 swings freely on a pivot *a*, supported by a rower box 1, which is attached to the side of the boat.

Claim.—The combination of the oscillating plate and double-jointed arms, forming a double-jointed boat oar, operating on an oar or rower-box as described, or in any manner substantially the same, for the purpose of enabling the oarsman to row forward with his face fronting the bow of the boat.

which trunnions are hollow to admit the rods G and L to slide freely through them. The propellers having blades on both ends are supported on bearings at *e;* by working the levers J J, a reciprocating motion is given to the paddles F F F.

Claim.—Constructing the propellers with blades on both sides, so as to enable the boat to be worked by the same mechanism when either side up, substantially as described.

No. 15,487.—WILLIAM A. LORDON.—*Improvement in Means for Guiding Line Ferry-Boats, or Flying Bridges.*—Patented August 5, 1856.

The cable X X is passed between the rollers *d* and d^1 on the ends of the vibratory beam D, and having been properly tightened, it forms a line from shore to shore. To cross the stream the boat is pushed from the bank, and at the same time the vibratory lever D is brought to the requisite angle with the side of the boat by means of the windlass E, her forward end being pointed up stream, and the force of the current operating against the sides of the boat will cause its propulsion.

The inventor says: I am aware that James Parks proposed the employment of a grooved wheel or pulley-block, with a rope attaching it to a boat guided by an ordinary steering oar, when said wheel was used as a traveller or a tight cable, stretched overhead from bank to bank, as a means of crossing streams by force of the current. I therefore do not claim this as my invention.

I *claim* the vibratory lever D, constructed substantially as described and arranged and operated with a cable, in the manner and for the purposes set forth.

No. 15,473.—JOHN M. BROOKE.—*Improvement in the Means for Attaching and Detaching Boats to and from their Tackle.*—Patented August 5, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—In the application to boats and their hoisting and lowering apparatus, a bolt B with a hollow head opening on and forming part of a curved channel or deflecting surface C, having also a curved slot to correspond with the channel; so that a ball A fitting conformably thereto will, by the force of gravity, when permitted, follow this curve and be turned aside, and moreover will be prevented from reattaching itself to the bolt if passing up and down before the aperture.

I also claim the arrangement of a cock or prop F, let into the side of the deflecting surface, so as to secure the ball in the head of the bolt when required, but offering no obstacle to its entrance.

No. 15,954.—JOHN SCHAFFER.—*Improvement in Capstans for Steamboats.*—Patented October 21, 1856.

The nature of this invention consists in the mechanical arrangement connecting the shaft A, which is driven by the steam engine, with a

Claim.—The hinged arms F and projections A, or their equivalents, for supporting the anchor, in combination with the lock-lever B and projections *l*, when operating in the manner and for the purposes as herein set forth.

No. 15,323.—Arthur Barbarin and B. F. Simms.—*Electro-Magnetic Fog-Bell.*—Patented July 15, 1856. England, August 17, 1855.

A is an electro-magnet, B the armature which is attached to the short arm of the lever C. Upon the end of the long arm of this lever is a hammer D, which strikes the bell E when the arm C is raised. To the verge G of a common clock-work are fixed two wires H and H^1, the free ends of which (as the verge vibrates to and fro) dip alternately into mercury cups K; thus whenever the wires dip into the mercury cups, the battery connexion is established, the armatures cause the hammers to strike the bells, and while the clock runs the bells ring.

Claim.—The application of electricity and magnetism to the ringing of fog-bells.

No. 15,605.—Henry L. De Zeng.—*Self-Adjusting Fog-Bell.*—Patented August 26, 1856.

When the float at the extremity of the arm or lever F is actuated by the swells, the chain G will be drawn backward and forward through the arch D. This will cause the cam *g* to turn partially around, or revolves upon the ring *d*, it will make no difference in which direction the of the cam strikes the bottom of the arch, the opposite one presenting a smooth surface for the chain to slide over the two friction-rollers *e* and *f*, relieving the ends of the arch; this will compel the axle of the cam *g* to act upon the heel of the hammer E at the passage of each swell, the hammer being a sufficient distance from the bell to allow the catch *h* of the cam *g* to pass to the upper side of the heel *n* of the hammer, the ends of both being bevelled for that purpose. As the frame until the spur or tooth *l* passes out of each of the chains, and one end waves roll, or what may be the state of the tide, as the float will swing round and adjust itself in any position required.

Claim.—The attaching a float to a lever or arm that is connected at or near the other end to a fixed vertical shaft or axis in such a manner that said float shall be allowed to swing around said vertical shaft or axis and accommodate itself in the direction in which the swell or current or both are moving, so that said float is not subjected to any sideways concussion or strain from either the tide or swell, but is free to oscillate or vibrate with the swell, and communicate motion to any suitable bell or other alarm, substantially as specified.

2d. I claim attaching the ends of a chain, or its equivalent, on opposite sides of a lever that receives a vibrating or oscillating motion from a swell, when said chain is passed over a cam-wheel or other similar article, to communicate the motion imparted to the lever and chain to the hammer of a bell or other signal or alarm, as described.

3d. I claim the arrangement of the cam *g* and catch *h* rotatively

Claim.—The floats or buckets D D applied or attached to the wheel, as shown, and expanded, or spread and contracted, or closed by the cams F G, arranged as shown and described.

No. 15,967.—MATTHEW A. CROOKER.—*Arrangement of Buckets of Paddle-Wheels.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The method of arranging the buckets or floats of a paddle-wheel when the buckets are to be broken into sections; that is to say, by arranging each set or section of buckets along four arcs which circumscribe the periphery, and which arcs are struck with a radius greater than the semi-diameter of the wheel, each set of buckets when placed upon the shaft being arranged so that the place where the arcs of the one set meet shall stand opposite to the centre of an arc in the adjoining set, if the wheel be composed of but two sections, or when more than two sections shall be divided proportionally.

No. 14,920.—HARVEY LULL.—*Improvement in Feathering Paddle-Wheels.*—Patented May 20, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Imparting to the paddles *e* of paddle-wheels a rotating motion on axis *d*, whilst revolving about the axis *a* of the paddle-wheel, by means of an eccentric cog-wheel *g*, combined with and engaging the cogs of the pinions *f* on the shafts *d* of the paddles.

No. 15,149.—JOSEPH G. SHANDS.—*Improvements in Feathering Paddle-Wheels.*—Patented June 17, 1856.

Within each ring C is placed a steadying grooved wheel D, secured to the wheel-shaft A. Two smaller grooved wheels E E are placed in such positions as to act on the outer peripheries of said rings opposite their axes. The said grooved wheels E E rotate freely on their arbors F F, and they are allowed to have a limited lateral movement on said arbors, controlled by the off-sets *k k* and springs *j j*; which arrangement enables the grooved wheels E E to adapt themselves to all lateral oscillations of said rings, and yet enables said grooved wheels to afford ample lateral support to said rings when they are subjected to violent shocks. All shocks or concussions which have a tendency to force upwards the rings C C are transmitted directly to the wheel-shaft A by the grooved wheels D D.

Claim.—Combining the wheels D D with the shaft A, in such positions that they are enabled to transmit a portion of the strain exerted upon the rings C C directly to the said shaft, substantially as herein set forth; in connexion with the combination of the wheels D D with shaft A in such positions as to bring them within the inner peripheries of the rings C C.

I also claim making the holes in the outer ends of the arms *h h* of an oblong shape. for the purpose substantially as herein set forth.

vents the hank from sliping round, so as to carry the bolt-rope out of the recess E.

The inventor says: I am aware that it is not new to make a metallic hank-body in two parts, connected by a hinge and screw. I do not claim such.

I *claim* an arrangement of the hinge and the guard, relatively to the eye and the clasp, or connecting contrivance; the entire guard being in one piece, and fastened to the movable part of the body, and so as to be movable with it, and to open from and shut against the other part, as specified.

No. 14,094.—Henry Duncan Preston Cunningham.—*Improvement in Reefing Sails.*—Patented January 15, 1856.—Patented November 30, 1850, England.

The sail is kept from chafing against the lee rigging when rolled upon the yard, by the spar G, which stretches from yard-arm to yard-arm, and is secured to the yard-arm hoops. This spar also carries the top-gallant studding-sail booms.

The sail is divided down the centre, to enable it to clear the centre fittings on the yard; and this aperture in the sail is closed by a bonnet S, which is provided at intervals with metal travellers T. The upper traveller T is furnished with screw-bolts which are inserted into holes in the iron D, which latter is so made as to swing, that the bonnet shall blow out or work in harmony with the other parts of the sail.

Claim.—1st. The chafing spar G applied to the after side of the sail yard, for fending off the sail from the mast or rigging when rolled around the yard, as set forth.

2d. The radius bar D in combination with the bonnet-head, in order to permit the top of the bonnet to blow out in harmony with the belly of the sail, as described.

No. 15,754.—Isaac Boss.—*Improvement in Reefing Topsails.*—Patented September 23, 1856.

The lines *c* are fastened in the eyelet holes *a*, and reef from aft forward, having knots in the ends of the lines, bringing the knots close to the holes; the lines then run up between the head of the sail on a straight line and the fore part of the yard, thence to the mast-head direct, with a block at the mast-head, reefing from forward aft and thence leading on deck.

Claim.—1st. The running of lines from the reef, between the head of the topsail and the fore part of the yard, thence direct to the top mast-head.

2d. The arrangement of reef tackle beneath the yard, running from the end of the yard to the quarter on deck.

3d. The peculiar mode of strengthening the sail by bands and double ropes, as described.

No. 14,048.—SAMUEL W. BROWN.—*Improvement in Constructing the Bottoms of Ships and other Vessels.*—Patented January 8, 1856.

The nature of this invention consists in constructing so much of the lower bottom part A of cast-iron as may be necessary to constitute both ship's bottom and ballast.

Claim.—Making the entire bottom A and keel of ships and other vessels of thick and continuous plates of metal, for the united purposes of bottom and ballast, as herein set forth.

No. 14,365.—ALEXANDRE LE MAT.—*Improvement in Means for Increasing the Buoyancy of Ships and other Vessels.*—Patented March 4, 1856.

The nature of this improvement consists in inserting into and attaching to the sides of a vessel slotted tubes $s\ s\ s^1$, into which are placed knobs at the rear ends of bags $a\ a^1\ a^2\ a^3\ a^4\ a^5$. These bags can be drawn to their proper positions along the tubes by means of a windlass and ropes attached to the knobs. The bags when inflated, as represented at $a^3\ a^4\ a^5$, will add to the buoyancy of the vessel. The sectional figure 2 is drawn on an enlarged scale.

Claim.—The horizontal and upright tubular rails or tubes, constructed, furnished, and operated, substantially as described and for the purposes essentially as specified.

No. 15,090.—WILLIAM MONT. STORM.—*Improvement in Safes for Ships and other Vessels.*—Patented June 10, 1856.

The bottom *b* of the fire-proof receptacle B is detached from the main body, so as to permit the water to flow in at *c*, in order to float out the buoy C as the vessel sinks. C is formed of two separate thicknesses of metal, the space between these two being filled with India-rubber. The tube Z is open at top and bottom; the float Z^1 carries a flag-staff and pennant, which will be hoisted by the rise of Z^1 when the safe is afloat. The safe C is made to serve also the purpose of a life-preserver by means of the bails *f f*, &c.

Claim.—The combination of the receptacle or "sheath" B, open at the bottom, and at its top open to the upper deck A, with the (independently water-tight) double-shelled buoy C, having within it the (again independently water-tight) "deposit chamber" D for valuables, said chamber being accessible from the exterior by a water-tight door E, closing and clamping for that purpose on an elastic seating, &c., substantially as described.

2d. The buoy, the tube Z, flag, and float Z^1, for the purpose explained.

No. 15,886.—JAMES KELLEY.—*Improvement in Anti-Friction Bushing for Ships' Blocks.*—Patented October 14, 1856.

The rollers D can revolve freely in their bearings in the rings E, and said rings can rotate freely in corresponding grooves *d* in the heads C

the pawl P will catch into the ratchet I, and release ratchet R, so that by turning the top H it will carry the gear J which turns the gear K and shaft L. This shaft L turns in boxes M N on the arms G G, and carries the gear O, arranged to work into the stationary internal annular gear B, so as to turn the barrel F with great power.

Claim.—The gears J an K, arranged at the top of the capstan, ind combination with the shaft L and gears O and B, arranged at the bottom of the capstan, for communicating a slow and powerful motion to the barrel F, substantially as described.

No. 15,933.—CHARLES PERLEY.—*Improvement in Ships' Capstans.*—Patented October 21, 1856.

By reference to the claim and engravings, it will be seen that, by turning the barrel *a* into certain positions, the pinion *m* may be removed from shaft 2. The apparatus may then be worked without said pinion, or the pinion *m* may be attached to shaft 8, and thus the number of revolutions of the barrel *b* can be regulated according to circumstances.

The inventor says: I do not claim a capstan with the barrel filled to rotate with, or be independent of, the handspike head, as this has been done; neither do I claim varying the power of the capstan by means of gearing in itself, as worm-pinions, gears, and a variety of means have been heretofore in use; but I am not aware that a wheel around the base of the capstan has ever before been actuated by a movable pinion, receiving its motion from the handspike head, centre-shaft, and gearing in the base; thereby the power to revolve the capstain is applied to the best advantage, and with the largest possible leverage against the rope or chain around the barrel of the capstan.

But I *claim*, 1st, retaining said pinion *m* in place, by the overhanging base of the capstan barrel, except at the notches *q*, at which point said pinion *m* can be removed, as specified.

2d. Constructing the oil receptacle and groove 6 (that contains the sustaining balls) higher at the outside than the inside, to cause said balls, in their motion, to lubricate the journal 5, substantially as specified.

No. 15,123.—JAMES EMERSON.—*Improvement in Ships' Capstans and Windlasses.*—Patented June 17, 1856.

If the key *b* is elevated, the wheel or windlass H will be connected and will turn with the shaft D and capstan G. The capstan G is connected with the windlass or wheel H when the cable is drawn up, and the strap J is loosened by turning the shaft L. This capstan combines thus the advantages of a double capstan for joint or separate and controllable operation.

The inventor says: I claim nothing new, irrespective of the arrangement and operation together, substantially as specified, of the parts of the capstan made to couple and uncouple at pleasure for joint or separate action, as required; nor do I claim the application of a friction-strap or belt to a windlass barrel.

No. 15,732.—Joseph S. Foster.—*Improvement in Reefing Ships' Sails upon Extra Yards.*—Patented September 16, 1856.

On lowering the topsail yard C and sail L, a tension and drawing is caused on the reefing lines *n*, operating through the pulleys O, which, drawing on the circumference of the arms *d* of the folding yard H, causes this yard to revolve, and consequently folds up the sail, as may be required, in two directions towards, the top and lower yards C and D.

Claim.—The double yard H H H, or extra yard of two pieces, placed about midway between the upper and lower yards, the sail passing between the two pieces, operating in the manner and for the purpose set forth.

No. 16,045.—Thomas Carr.—*Improvement in Steering Apparatus for Ships.*—Patented November 11, 1856.

The ropes wound around the tiller-shaft F pass around the pulley E, to which the rudder-shaft L is connected by means of rod K.

The inventor says: I do not confine myself to the details, as I have shown that they may be variously modified and yet retain the peculiar characteristics of my invention. I *claim* the application to the ordinary steering apparatus of vessels of a crank, or its mechanical equivalent the eccentric, working in combination with an entire pulley or its segment, a quadrant on a vertical axis, the whole being interposed as a medium of communication between the wheel-ropes or chains and the tiller.

No. 26,165.—David W. Smith.—*Improvement in Steering Apparatus for Ships.*—Patented December 2, 1856.

This apparatus is an improvement on the steering apparatus of D. Crowell, patented December 5, 1854. In this apparatus the main pinion H on wheel-shaft E does not engage directly with the main rack I, but plays into the guard-rack M, and also into the pinion L, which engages with the main-rack I on the rudder-shaft K.

Claim.—I *claim* the arrangement of the guard-rack and the pinion on the tiller with the main rack and the pinion of the hand-wheel shaft, the whole being substantially in the manner and for the purposes as specified.

No. 16,238.—Peter H. Jackson.—*Improvement in Ships' Windlasses.*—Patented December 16, 1856.

This invention refers to the peculiar construction of pawls 2 attached to each of the heavers *k*, which operate the ratchets *i* of a windlass; these pawls 2 are attached to shaft 3, and can be turned by means of cranks 4 to either of the two positions represented in figs. 2 and 3, and are retained in such positions by means of counterweights 5. By turning these pawls to one or the other side, the motion of the windlass can be reversed.

Claim.—The double-acting pawl 2, crank arm 4, and counterweight 5, applied to the heaver or heavers of the windlass, arranged and operated substantially as and for the purposes specified.

No. 14,104.—WILLIAM R. LAVENDER and ATKINS SMITH.—*Improved Steering-Wheel Stopper.*—Patented January 15, 1856.

The lips *c* relieve the hinge D of all lateral strain. The dotted lines marked C^1 represent the stopper when turned back out of the way of the handles *b*, so as to leave the wheel free to be operated.

Claim.—Constructing a wheel stopper C, and applying it so as to operate with the wheel A and tiller B, substantially as specified, viz: so that it may turn up and down on a hinge D, and when down embrace the wheel handle *b*, and be supported laterally under the strain of the wheel by devices essentially as above described.

No. 15,898.—LODNER D. PHILLIPS.—*Improvements in Submarine Exploring Armors.*—Patented October 14, 1856.

The operation of this apparatus is such that a person placing his feet in the lower extremities *f f* of the machine, and attaching the leathern girdle firmly about his loins, the air-chamber *e* being filled with condensed air, and the cap *d* firmly bolted to the head *c*, the apparatus may be let down to any required depth in the water. The air in the cavity A becoming vitiated, the operator turns the cock *m*, and receives a fresh supply from the air pressed in the reservoir B; by opening the valve *l*, the vitiated air escapes through the tube *k*. If the operator wishes to ascend without assistance, he turns the cock *o*, and admits the compressed air into the bag or submarine balloon *r*, which gives additional buoyancy to the apparatus; then, if wishing to descend again, he closes the cock *o*, opens the cock *p* in the branch pipe, and the pressure of the water collapses the balloon *r*.

Claim.—1st. A submarine armor with which the explorer can be wholly invested, composed entirely of metal, having free and easily moving jointed limbs, and from within which the explorer may give motion to the armor, and operate the external means, as set forth.

2d. Connecting with such armor a collapsible exterior vessel, so united with the interior air-chamber as to allow of its being inflated, and buoy up the armor, as described.

3d. Arranging the rods for operating the external tongs or nippers within the tubular arms, as set forth.

No. 15,125.—J. B. FAYETTE and D. WHEELER.—*Improvement in Strapping Tackle-Blocks.*—Patented June 17, 1856.

These improved straps for tackle-blocks can be applied to the blocks cold, and removed from and applied to other blocks with facility.

Claim.—For tackle-blocks a strap made in two parts A and B, each part having a hook at one end to hook into the eye of the block-hook, and a hole near the other end for the bolt that fastens them together.

No. 16,084.—GEORGE S. BURROWS.—*Improvement in Attaching Centre-Boards to Vessels.*—Patented November 18, 1856.

The centre-board C may be raised or lowered in the usual manner

No. 14,487.—LAMBERT ALEXANDER.—*Improvement in Propelling Vessels.*—Patented March 25, 1856.

B B are slides or guide-rods; E E are piston-rods to which the motive power is communicated; fig. 3 represents the bucket F in an upright position, and fig. 4 in a horizontal position. G G are guide-blocks.

When the rollers I I come in contact with the inclines H, the bucket is brought into a vertical position; at the same time the spring-blocks K K, becoming free, will project over the slides B, and keep the buckets moving in this position until the inclines L force the blocks K K back again, allowing the bucket again to be turned horizontally by passing beneath the rollers M on the adjustable levers N N^1.

I do not limit myself to the use of my propeller in any particular part of the vessel, nor to the size or shape of the buckles themselves, nor to any particular character of motive power; but what I *claim* is, regulating the motion of the propelling buckets by the combined action of the spring-blocks K, inclines L, rollers I I and M, and inclines H H, substantially as specified.

No. 14,226.—WALDO P. CRAIG and WILLIAM R. RIGHTOR.—*Improvement in Signals for Vessels.*—Patented February 12, 1856.

The object of this improvement is to make it manifest if one vessel is steering directly towards another; in this case, the three signal lights *a b c* on one of the vessels will appear to an observer on the other vessel in a vertical line, one above the other; whereas if the vessel steers in any other direction, the three lights will appear in an oblique line.

Claim.—A range of lights placed in the forward part and in the longitudinal centre of a vessel, the foremost being the lowest, and the following ones rising in succession above it, so as so present to an observer in or near the line of its course a range of light which is either vertical, or is directed obliquely to starboard or larboard, according to the course of the vessel.

No. 15,319.—JOHN GUEST.—*Improvement in Sounding-Guards for Vessels.*—Patented July 8, 1856.

The rod A is marked in feet so as to show on the spar deck the number of feet of water under the bottom, when the ends of the rods or radius bars B come in contact with the ground. The bars B B attached at E to the rod A slide with their other ends in a groove C by means of rollers R; they serve as fenders to prevent the rod A from breaking or bending, and to shut it up as the water shoals. A bell is attached to the pin of the shackle L, so that an alarm is given the instant the rod A rises above the mark at which it was set.

Claim.—The mechanical construction of the machine hereinbefore described, and especially the attachments of the radius bars B B, working in the grooves C C, by which I am enabled to indicate the approach of shoal water, whether the vessel be going ahead or astern.